PIONEER®
The Art of Entertainment

Service Manual

● PD-DM902/KU TYPE

ORDER NO.
ARP2726

MULTI-PLAY COMPACT DISC PLAYER

PD-DM902
PD-DM802

PD-DM902 AND PD-DM802 HAVE THE FOLLOWING :

Type	Model		Power Requirement	Remarks
	PD-DM902	PD-DM802		
KU	○	○	AC120V only	
KC	○	○	AC120V only	
SD	–	○	AC110V, 120-127V, 220V, 240V (switchable)	
HEM	–	○	AC220-230V, 230-240V (switchable)*	
HPW	–	○	AC220-230V, 230-240V (switchable)*	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to the following : PD-DM902/KU and KC ; PD-DM802/KU, KC, SD, HEM and HPW.**
- **For the following : PD-DM902/KC ; PD-DM802/KC, SD, HEM and HPW, refer to page 51.**

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols -▮▭▮- (fast operating fuse) and/or -▮▭▮- (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible -▮▭▮- (fusible de type rapide) et/ou -▮▭▮- (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

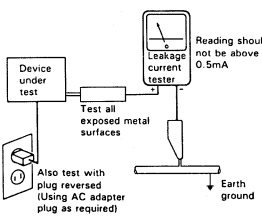
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

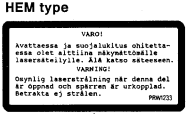
LASER
Picture 1
Warning sign for laser radiation

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK (MULTI MAGAZINE type)

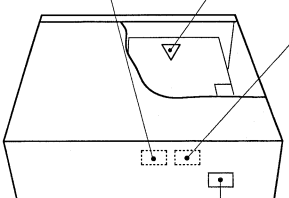
HEM type


VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
PRW7233

HEM type

HEM type

ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! MICHT DEM STRAHL AUSSETZEN!
VRW1094



REAR VIEW

HEM type

Additional Laser Caution

1. Laser Interlock Mechanism
   The ON/OFF (ON : low level,OFF : high level) status of the LPS1 (S901) and LPS2 (S902) switches for detecting the loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when both switches LPS1 and LPS2 are not ON (low level) (clamped state).
   Thus, interlock will no longer function if switches LPS1 (S901) and LPS2 (S902) are deliberately shorted.
   The interlock also does not operate in the test mode ∗.
   Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the preamplifier board loaded on pick up assembly are connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

2. When the cover is opened with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam. '92 M1A

∗ : Refer to page 35.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

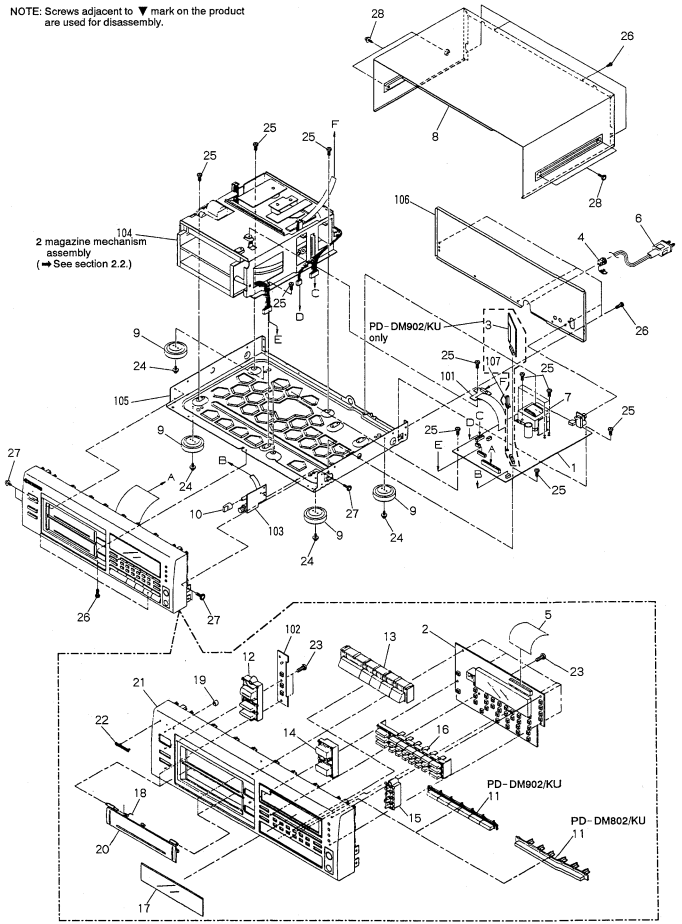
2.1 EXTERIOR SECTION

Parts List

Mark	No.	Description	Part No.
	1	Main board assembly (PD-DM902/KU)	PWZ2587
	1	Main board assembly (PD-DM802/KU)	PWZ2596
	2	Display board assembly (PD-DM902/KU)	PWZ2590
	2	Display board assembly (PD-DM802/KU)	PWZ2604
	3	DSP board assembly (PD-DM902/KU only)	PWX1288
⚠	4	Strain relief	CM-22C
	5	Flexible cable (36P)	PDD1090
⚠	6	AC power cord	PDG1015
⚠	7	Power transformer(AC120V)	PTT1282
	8	Bonnet	PYY1173
	9	Insulator	PNW1912
	10	Headphone knob	PAC1600
	11	DSP button (PD-DM902/KU only)	PAC1728
	11	Fix button (PD-DM802/KU only)	PAC1736
	12	Power button	PAC1729
	13	Operating button	PAC1731
	14	Eject button	PAC1737
	15	Mode button	PAC1738
	16	Select button	PAC1739
	17	Display window	PAM1613
	18	Door spring	PBH1022
	19	LED lens	PNW2019
	20	Door	PNW2138
	21	Operation panel (PD-DM902/KU)	PNW2309
	21	Operation panel (PD-DM802/KU)	PNW2308
	22	Name plate	PAM1608
	23	Screw	PPZ30P100FMC
	24	Screw	IBZ30P100FMC
	25	Screw	BBZ30P060FMC
	26	Screw	BBZ30P080FCC
	27	Screw	IBZ30P080FCC
	28	Screw	FBT40P080FZK

Mark	No.	Description	Part No.
NSP	101	Connector board assembly	PWZ2573
NSP	102	Power switch assembly (PD-DM902/KU)	PWZ2591
NSP	102	Switch board assembly (PD-DM802/KU)	PWZ2605
NSP	103	Headphone board assembly (PD-DM902/KU)	PWZ2592
NSP	103	Headphone board assembly (PD-DM802/KU)	PWZ2606
NSP	104	2 magazine mechanism assembly	PXA1498
NSP	105	Under base	PNA1976
NSP	106	Rear base (PD-DM902/KU)	PNA1984
NSP	106	Rear base (PD-DM802/KU)	PNA1983
NSP	107	Card corner holder (PD-DM902/KU only)	PNW2343

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

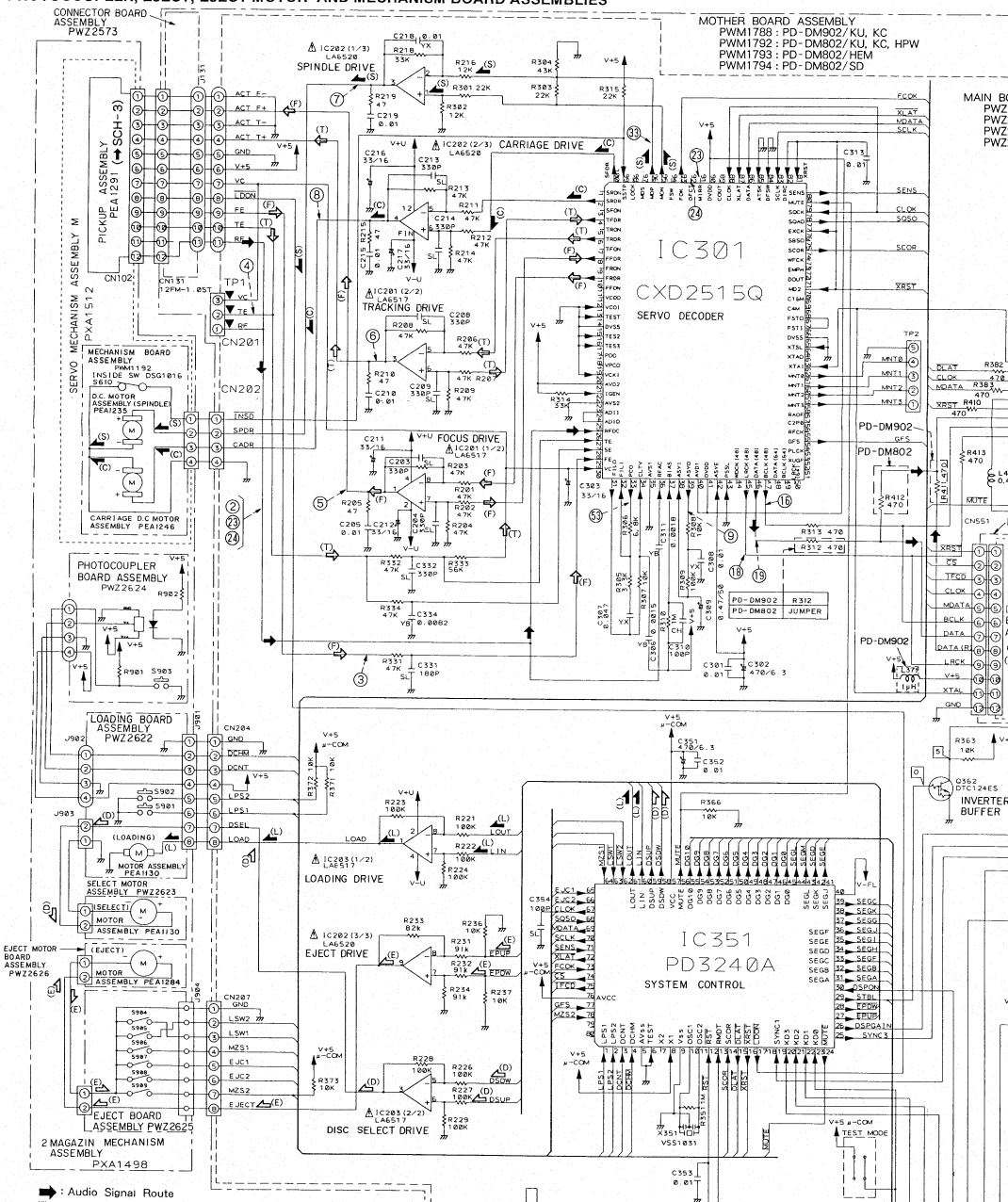


2.2 2 MAGAZINE MECHANISM ASSEMBLY

Parts List

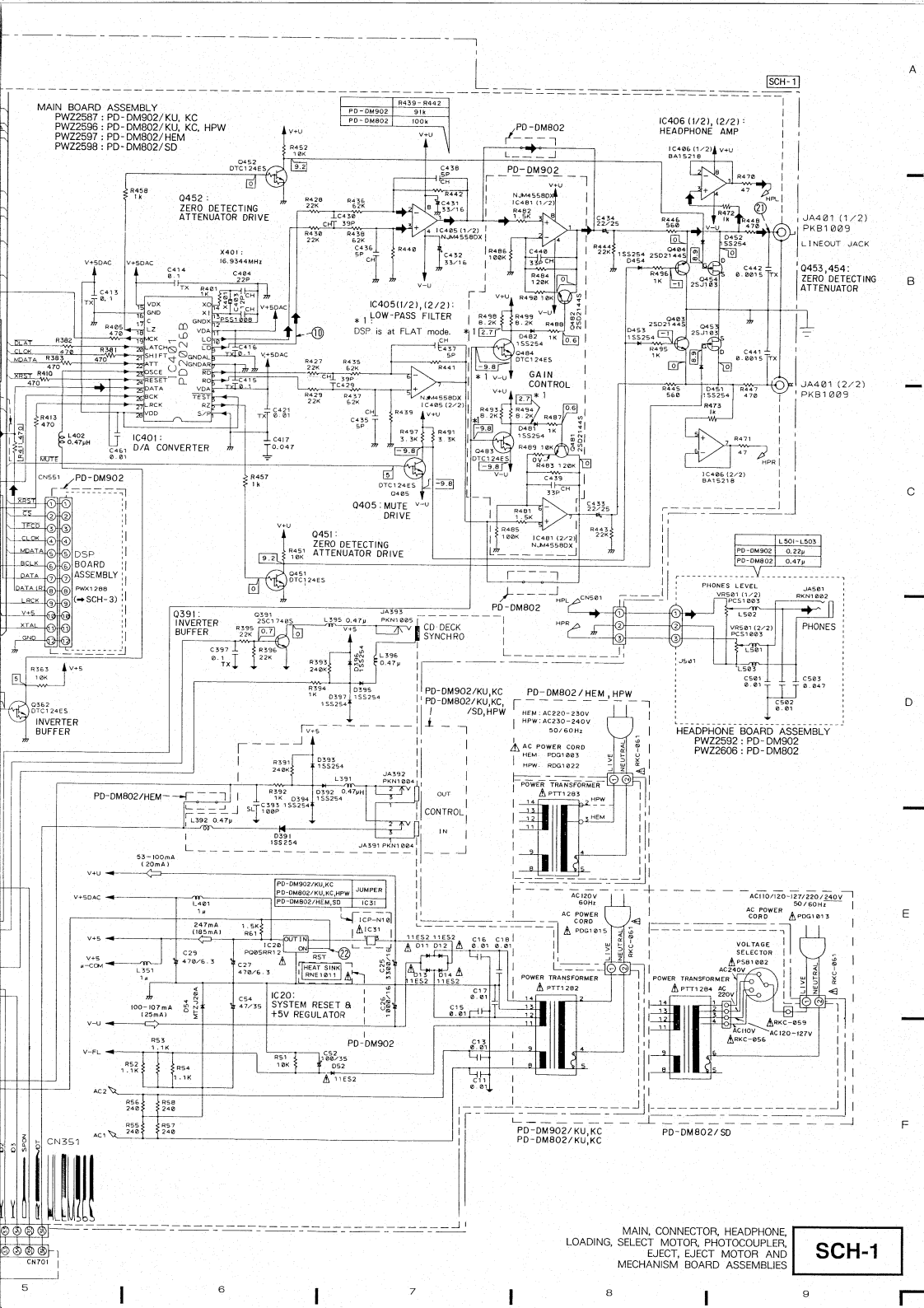
Mark	No.	Description	Part No.
	1	Sensor spring	DBH1102
	2	Adjustment screw	PBA1059
	3	Eject spring	PBH1158
	4	SM spring	PBH1159
	5	Lock spring	PBH1160
	6	Belt B	PEB1245
	7	Rubber spacer	PEB1246
	8	Motor pulley B	PNW1634
	9	Lock lever	PNW2344
	10	Main cam	PNW2292
	11	Gear pulley	PNW2293
	12	Actuator	PNW2294
	13	Sensor plate	PNW2295
	14	Roller	PNY-386
	15	• • • • •	
	16	Motor screw	PBA-112
	17	Float screw	PBA1073
	18	Clamper spring	PBH1109
	19	Hold lever spring	PBH1110
	20	Sub turn drive lever spring	PBH1111
	21	Balance spring A	PBH1161
	22	Balance spring C	PBH1162
	23	Belt	PEB1138
	24	Belt A	PEB1244
	25	Cushion A	PED1001
	26	Clamper	PNW1857
	27	Gear pulley	PNW1918
	28	Gear L	PNW1920
	29	Clamper holder	PNW1921
	30	Clamper cam	PNW1922
	31	Cam gear	PNW1923
	32	Disc holder	PNW1924
	33	Hold lever	PNW1925
	34	Gear holder	PNW1929
	35	Drive plate	PNW1930
	36	Turn drive lever	PNW1932
	37	Sub turn drive lever	PNW1933
	38	Worm wheel	PNW2345
	39	Gear pulley A	PNW2297
	40	Drive gear	PNW2298
	41	Roller	PNW2299
	42	Worm shaft assembly	PXA1499
	43	Float rubber	PEB1014
	44	Float rubber	PEB1132
	45	Motor assembly (LOADING, SELECT)	PEA1130
	46	Motor assembly (EJECT)	PEA1284
	47	Motor	PXM1011
	48	Screw	BBZ30P050FMC
	49	• • • • •	
	50	Screw	IPZ30P080FMC
	51	Screw	BMZ26P030FMC
	52	Screw	PMZ26P040FMC
	53	Screw	PPZ30P080FMC
	54	Washer	WA31D054D025
	55	Washer	WT26D047D025
	56	Washer	WT36D072D025
	57	E ring	Z39-010
	58	Washer	WA31D054D013
	59	Screw	BPZ30P060FZK
	60	Screw	JFZ20P040FMC
	61	Screw	BPZ20P080FZK
	62	Screw	BPZ26P080FMC
	63	Screw	PMZ30P040FMC
NSP	101	Carriage motor	VXM1033
NSP	102	Main chassis	PNA1975
NSP	103	Under chassis	PNB1459
NSP	104	Parallel link	PNB1443
NSP	105	Eject lever	PNB1445
NSP	106	SM select	PNB1446
NSP	107	Stopper	PNB1447
NSP	108	Top guide	PNW2282
NSP	109	Center guide	PNW2283
NSP	110	Bottom guide	PNW2284
NSP	111	Side guide L	PNW2285
NSP	112	Side guide R	PNW2286
NSP	113	Cord clamp S	DEC1574
NSP	114	Rubber tube	PEB1171
NSP	115	Drive shaft	PLA1124
NSP	116	Upper chassis	PNB1444
NSP	117	Parallel link holder plate	PNB1448
	118	• • • • •	
NSP	119	Sub chassis	PNW2287
	120	• • • • •	
NSP	121	Servo mechanism assembly M	PXA1512
	122	• • • • •	
NSP	123	Loading board assembly	PWZ2622
NSP	124	Select motor assembly	PWZ2623
NSP	125	Photocoupler board assembly	PWZ2624
NSP	126	Eject board assembly	PWZ2625
NSP	127	Eject motor board assembly	PWZ2626
NSP	128	Rubber stopper	PEB1257
NSP	129	Spring holder	PNM1227

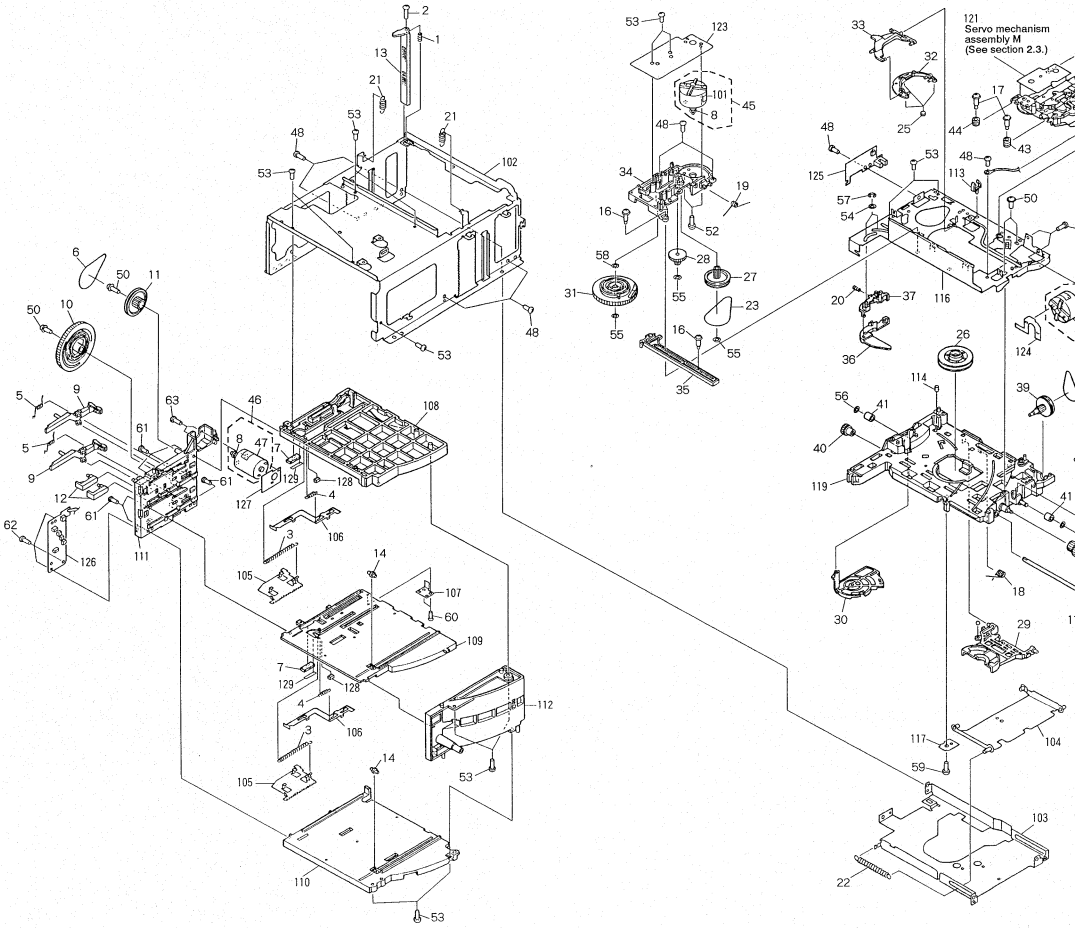
3.1 MAIN, CONNECTOR, HEADPHONE, LOADING, SELECT MOTOR, PHOTOCOUPLER, EJECT, EJECT MOTOR AND MECHANISM BOARD ASSEMBLIES


CONNECTOR BOARD ASSEMBLY PWZ2573
MOTHER BOARD ASSEMBLY
PWM1788 : PD-DM902/KU, KC
PWM1792 : PD-DM802/KU, KC, HPW
PWM1793 : PD-DM802/HEM
PWM1794 : PD-DM802/SD
PICKUP ASSEMBLY PEA1291 (SCH-3)
SERVO MECHANISM ASSEMBLY M PXA1512
IC202 (1/3) LA6520 SPINDLE DRIVE
IC202 (2/3) LA6520 CARRIAGE DRIVE
IC201 (2/2) LA6517 TRACKING DRIVE
IC201 (1/2) LA6517 FOCUS DRIVE
IC301 CXD2515Q SERVO DECODER
IC351 PD3240A SYSTEM CONTROL
MECHANISM BOARD ASSEMBLY PWM1192
INSIDE SW DSG1016
D.C.MOTOR ASSEMBLY (SPINDLE) PEA1235
CARRIAGE D.C MOTOR ASSEMBLY PEA1246
PHOTOCOUPLER BOARD ASSEMBLY PWZ2624
LOADING BOARD ASSEMBLY PWZ2622
MOTOR ASSEMBLY PEA1130
SELECT MOTOR ASSEMBLY PWZ2623
MOTOR ASSEMBLY PEA1130
EJECT MOTOR BOARD ASSEMBLY PWZ2626
MOTOR ASSEMBLY PEA1284
EJECT BOARD ASSEMBLY PWZ2625
2 MAGAZIN MECHANISM ASSEMBLY PXA1498
LOADING DRIVE
EJECT DRIVE
DISC SELECT DRIVE
PD-DM902
PD-DM802
PD-DM902 R312 JUMPER
INVERTER BUFFER
TEST MODE
DISPLAY BOARD ASSEMBLY PWZ2590 : PD-DM902 PWZ2604 : PD-DM802 (➡SCH-4)
: Audio Signal Route
(F) : Focus Servo Loop Line
(T) : Tracking Servo Loop Line
(L) : Loading Motor Route
(S) : Spindle Motor Route
(C) : Carriage Motor Route
(D) : Disc Select Motor Route
(E) : Eject Drive Motor Route
▶ : Measurement Point

SCH-1

MAIN, CONNECTOR, HEADPHONE, LOADING, SELECT MOTOR, PHOTOCOUPLER, EJECT, EJECT MOTOR AND MECHANISM BOARD ASSEMBLIES

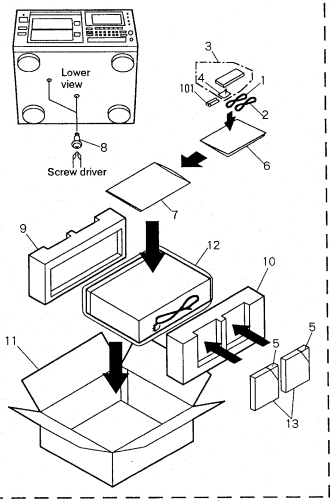

SCH-1
MAIN BOARD ASSEMBLY
PWZ2587 : PD-DM902/KU, KC
PWZ2596 : PD-DM802/KU, KC, HPW
PWZ2597 : PD-DM802/HEM
PWZ2598 : PD-DM802/SD
PD-DM902
PD-DM802
Q452 : ZERO DETECTING ATTENUATOR DRIVE
Q451 : ZERO DETECTING ATTENUATOR DRIVE
Q405 : MUTE DRIVE
IC401 : D/A CONVERTER
IC405(1/2),(2/2) : LOW-PASS FILTER
DSP is at FLAT mode.
GAIN CONTROL
IC406 (1/2), (2/2) : HEADPHONE AMP
Q453,454 : ZERO DETECTING ATTENUATOR
JA401 (1/2) PKB1009
LINEOUT JACK
JA401 (2/2) PKB1009
Q391 : INVERTER BUFFER
INVERTER BUFFER
CD DECK SYNCHRO
DSP BOARD ASSEMBLY PWX1288 (→SCH-3)
PD-DM902/KU,KC
PD-DM802/KU,KC, /SD,HPW
PD-DM802/HEM, HPW
PD-DM802/HEM
HEADPHONE BOARD ASSEMBLY
PWZ2592 : PD-DM902
PWZ2606 : PD-DM802
PHONES LEVEL
PHONES
IC20: SYSTEM RESET & +5V REGULATOR
POWER TRANSFORMER
AC POWER CORD
VOLTAGE SELECTOR
PD-DM902/KU,KC
PD-DM802/KU,KC
PD-DM802/SD
CN351
CN701
MAIN, CONNECTOR, HEADPHONE, LOADING, SELECT MOTOR, PHOTOCOUPLER, EJECT, EJECT MOTOR AND MECHANISM BOARD ASSEMBLIES
SCH-1

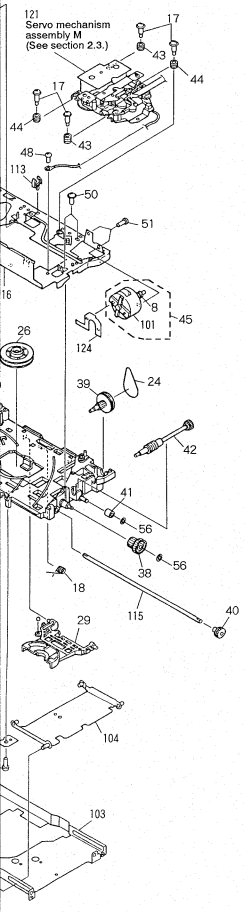

121
Servo mechanism
assembly M
(See section 2.3.)

2.4 PACKING

Parts List

Mark	No.	Description	Part No.
	1	Cord with mini plug	PDE-319
	2	Cord with plug	PDE1001
	3	Remote control unit (CU-PD065)(PD-DM902/KU)	PWW1082
	3	Remote control unit (CU-PD066)(PD-DM802/KU)	PWW1083
	4	Battery cover (PD-DM902/KU)	PZN1012
	4	Battery cover (PD-DM802/KU)	PZN1010
	5	Magazine assembly	PXA1504
	6	Operating instructions (English)	PRB1189
	7	Polyethylene bag	Z21-038
	8	Transportation screw (red)	PBA1080
	9	Protector F	PHA1241
	10	Protector R	PHA1242
	11	CD packing case (PD-DM902/KU)	PHG1929
	11	CD packing case (PD-DM802/KU)	PHG1928
	12	Mirror mat	Z23-031
	13	PP case	PYY1169
NSP	101	Battery (R03, AAA)	VEM-022

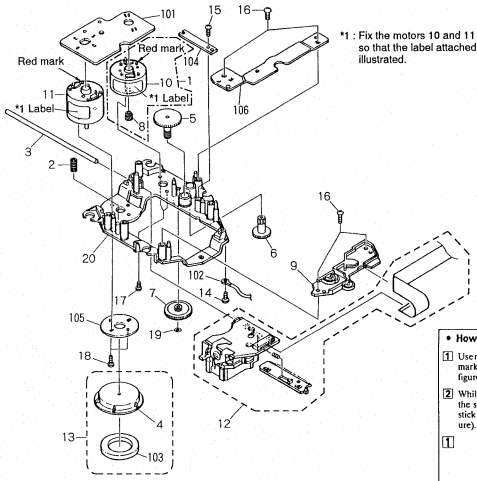




2.3 SERVO MECHANISM ASSEMBLY M

Parts List

Mark	No.	Description	Part No.
	1	Carriage D.C. motor assembly	PEA1246
	2	Earth spring	PBH1132
	3	Guide bar	PLA1094
	4	Disc table	PNW1067
	5	Gear 1	PNW2052
	6	Gear 2	PNW2053
	7	Gear 3	PNW2054
	8	Pinion gear	PNW2055
	9	PWB holder	PNW2057
	10	Carriage D.C. motor / 0.3W	PXM1027
	11	D.C. motor assembly (spindle, with oil)	PEA1235
	12	Pickup assembly	PEA1291
	13	Disc table assembly	PEA1035
	14	Screw	BBZ26P060FMC
	15	Screw	BPZ20P060FMC
	16	Screw	BPZ26P100FMC
	17	Screw	JFZ17P025FZK
	18	Screw	JFZ20P040FMC
	19	Washer	WT12D032D025
	20	Carriage base	PNW2058
NSP	101	Mechanism board assembly	PWX1192
NSP	102	Earth lead unit	PDF1074
NSP	103	Clamp magnet	PMF1014
NSP	104	Gear stopper	PNB1303
NSP	105	Yoke M	PNB1312
NSP	106	AV angle	PNB1405

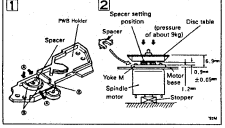


*1 : Fix the motors 10 and 11 on the mechanism board assembly 101 so that the label attached on the motor faces the direction illustrated.

• How to install the disc table

1 Use nippers or other tool to cut the three sections marked Ⓐ and the three sections marked Ⓑ in figure. Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of yoke M, and stick the disc table on top (takes about 9kg pressure). Detach the spacer.



MAIN BOARD ASSEMBLY

IC301
(CXD2515Q)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0, 1 to 0, 5	51	0
2	0	52	5
3	0	53	2.5
4	0	54	5
5	0.3	55	2.5
6	0	56	0
7	0.3	57	5
8	0	58	0
9	0.2	59	0
10	0.3	60	0
11	0.6	61	0
12	5	62	2.5
13	0	63	2.5
14	0	64	0
15	0	65	0
16	0	66	2.7
17	0	67	2.7
18	0	68	2.5
19	5	69	2.5
20	0	70	5
21	5	71	2.5
22	5	72	0
23	0	73	2.5
24	2.5	74	0
25	2.5	75	0
26	3.4	76	5
27	2.5	77	4.7 to 5
28	2.5	78	4.7 to 5
29	2.5	79	0
30	2.5	80	4.7 to 5
31	2.5	81	5
32	2.5	82	5
33	2.5	83	5
34	2.5	84	0
35	0	85	0
36	2.5	86	4.7 to 5
37	0.9	87	4.7 to 5
38	2.5	88	4.7 to 5
39	2.5	89	0
40	5	90	5
41	5	91	0
42	5	92	0
43	0	93	5
44	2.5	94	0
45	2.5	95	5
46	2.5	96	2.5
47	2.5	97	0
48	2.5	98	5
49	2.2	99	5
50	2.5	100	0 to 0.4

IC351
(PD3240A)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	5	41	-26 to -5
2	0	42	-26 to -5
3	5	43	-26 to -5
4	5	44	-26 to -5
5	0	45	-24
6	0	46	-24
7	0	47	-24
8	5	48	-24
9	0	49	-24
10	2.4	50	-24
11	2.4	51	-24
12	5	52	-24
13	5	53	-24
14	0	54	-24
15	5	55	-24
16	5	56	0
17	0	57	5
18	0	58	0
19	5	59	0
20	0	60	0
21	0	61	0
22	0	62	✻2 0
23	0	63	✻3 0
24	5	64	0
25	5	65	0
26	✻1 -9.8	66	0
27	5	67	4.7 to 5
28	5	68	4.7 to 5
29	0	69	4.7 to 5
30	✻4	70	5
31	-26 to -5	71	4.7 to 5
32	-26 to -5	72	4.7 to 5
33	-26 to -5	73	5
34	-21	74	5
35	-26 to -5	75	5
36	-26 to -5	76	5
37	-26 to -5	77	5
38	-26 to -5	78	0
39	-5 to 0	79	0
40	-26	80	0

IC401
(PD2026B)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0	15	5
2	0	16	0
3	5	17	5
4	5	18	0
5	2.4	19	2.5
6	2.6	20	5
7	0	21	4.7 to 5
8	0	22	4.7 to 5
9	2.6	23	5
10	2.4	24	5
11	5	25	2.5
12	0	26	2.5
13	2.4	27	2.5
14	2.4	28	5

IC202
(LA6520)

Pin No.	Voltage(V)
1	1.8
2	1.8
3	-0.7
4	0 to 0.4
5	0 to 0.2
6	0 to 0.2
7	2
8	2
9	0
10	0
11	0
12	9.2
PIN	-9.8

IC405
(NJM4558DX)

Pin No.	Voltage(V)
1	0
2	1.2
3	1.2
4	-9.8
5	1.2
6	1.2
7	0
8	9.2

IC481
(NJM4558DX)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	-9.8
5	0
6	0
7	0
8	9.2

IC406
(BA15218)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	-9.8
5	0
6	0
7	0
8	9.2

IC201
(LA6517)

Pin No.	Voltage(V)
1	-0.3
2	9.2
3	0.1
4	-9.8
5	0.1
6	0.1
7	0
8	0

IC203
(LA6517)

Pin No.	Voltage(V)
1	0
2	9.2
3	0
4	-9.8
5	0
6	0
7	0
8	0

IC20
(PQ05RR12)

Pin No.	Voltage(V)
1	9.2
2	5
3	0
4	5

DSP BOARD ASSEMBLY

IC551
(TC9331F)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0	41	0
2	2.5	42	0.1
3	2.5	43	0.1
4	0	44	0.1
5	2.5	45	0.1
6	5	46	0.1
7	5	47	0.1
8	2.5	48	0.1
9	5	49	0.1
10	2.5	50	5
11	5	51	0
12	5	52	0.1
13	0	53	0.1
14	5	54	0.1
15	2.5	55	0.1
16	5	56	0.1
17	2.2	57	0.1
18	2.5	58	0.1
19	0	59	0.1
20	2.5	60	0
21	0	61	1.9
22	0	62	2.1
23	5	63	5
24	2 to 3.1	64	5
25	2.5	65	5
26	2.5	66	5
27	2.5	67	5
28	2.5	68	5
29	2.5	69	5
30	2.5	70	4.7 to 5
31	2.5	71	4.7 to 5
32	0	72	5
33	2.5	73	5
34	2.5	74	5
35	2.5	75	5
36	2.5	76	5
37	2.5	77	5
38	2.5	78	2.5
39	2.5	79	2.5
40	2.5	80	0

IC552 QGC1016
(TC51832ASPL-10)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	2.5	15	0.1
2	2.5	16	0.1
3	2.5	17	0.1
4	2.5	18	0.1
5	2.5	19	0.1
6	2.5	20	1.9
7	2.5	21	2.5
8	2.5	22	5
9	2.5	23	2.5
10	2.5	24	2.5
11	0.1	25	2.5
12	0.1	26	2.5
13	0.1	27	2.1
14	0	28	5

Note ;
✻1 : PD-DM802 : 0V
PD-DM902 : −9.8V at DSP is FLAT mode.
5V at DSP is other mode.
✻2, ✻3 : 0V at Magazine 1 and 2 are respectively inserted.
✻4 : PD-DM902 : 5V
PD-DM802 : 0V

•Voltages of IC351 are different by mechanism-operation status.
Refer to the " IC INFORMATION " on pages 42 and 43.

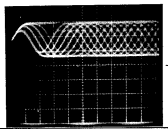
WAVEFORMS

Note:The encircled numbers denote measuring points in the schematic diagram.

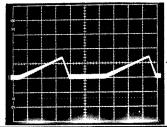
*1 50T-JUMP:After switching to the pause mode, press the manual search key.

*2 FOCUS-IN:Press the key without loading a disc.

(2) TP1 - Pin 1 : PLAY MODE
(RF)
500mV/div 500 μsec/div

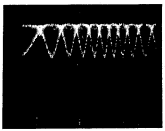


(5) IC201 - Pin 1 : FOCUS - IN (*2) MODE
(FODR)
1V/div 200msec/div

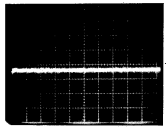


(7) IC202 - Pin 3 : TRACK SEARCH MODE
(SPDR)
2V/div 50msec/div

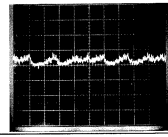
(2) TP1 - Pin 1 : TRACK SEARCH MODE
(RF)
500mV/div 200 μsec/div



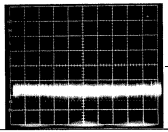
(5) IC201 - Pin 1 : PLAY MODE
(FODR)
1V/div 1msec/div



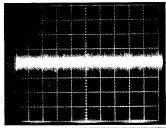
(8) IC202 - Pin 4 : PLAY MODE
(CADR)
500mV/div 5sec/div



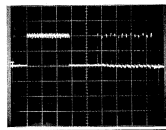
(3) FE side of R331 : PLAY MODE
(FOER)
100mV/div 10msec/div



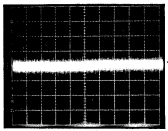
(6) IC201 - Pin 3 : PLAY MODE
(TRDR)
500mV/div 1msec/div



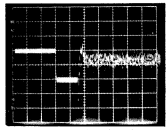
(8) IC202 - Pin 4 : TRACK SEARCH MODE
(CADR)
2V/div 200msec/div



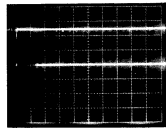
(4) TP1 - Pin 2 : PLAY MODE
(TRER)
1V/div 10msec/div



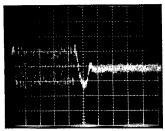
(6) IC201 - Pin 3 : 50T-JUMP (*1) MODE
(TRDR)
500mV/div 1msec/div



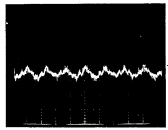
(9) IC301 - Pin 39 : PLAY MODE
(EFM)
2V/div 500nsec/div



(4) TP1 - Pin 2 : 50T-JUMP (*1) MODE
(TRER)
1V/div 1msec/div

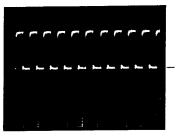


(7) IC202 - Pin 3 : PLAY MODE
(SPDR)
1V/div 50msec/div

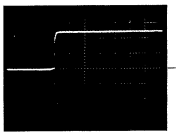


(10) IC401 - Pin 9 : PLAY MODE
($\overline{LO}$) (D/A DATA OUT)
1V/div 200 μsec/div

(16) IC301 - Pin 47 : PLAY MODE (1kHz)
(BCLK)
2V/div 500nsec/div

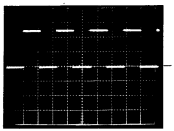


(22) IC20 - Pin 4 : POWER SWITCH - ON
(RST)
2V/div 100msec/div

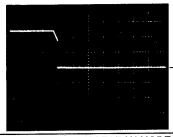


(26)

(18) IC301 - Pin 45 : PLAY MODE (1kHz)
(LRCK)
2V/div 10 μ sec/div

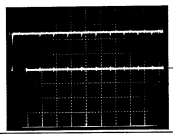


(22) IC20 - Pin 4 : POWER SWITCH - OFF
(RST)
2V/div 100msec/div

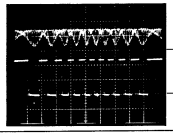


(27)

(19) IC301 - Pin 46 : PLAY MODE (1kHz)
(DATA)
2V/div 500nsec/div



(23) : TRACK SEARCH MODE
Upper : TP1 - Pin 3 (RF) 1V/div
Lower : IC301 - Pin 91 (MIRR)
2V/div 200 μ sec/div

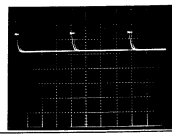


(28)

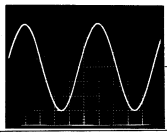
(20)

(24) : PLAY MODE
Upper : TP1 - Pin 3 (RF) 1V/div
Lower : IC301 - Pin 92 (DFCT)
5V/div 200 μ sec/div

(33) IC301 - Pin 96 : PLAY MODE
(MDP)
2V/div 2 μ sec/div

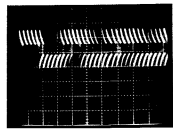


(21) JA401 : PLAY MODE(1kHz)
(L ch OUTPUT)
1V/div 200 μ sec/div



(25)

(53) IC301 - Pin 33 : PLAY MODE
(PCO)
2V/div 10 μ sec/div



(For SCHEMATIC DIAGRAM)

Note: (Type 4)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:
Unit: kΩ, MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance:(F):±1%, (G):±2%, (K):±10%, (M):±20% or ±5% unless otherwise noted.

4. CAPACITORS:
Unit : p:pF or μF unless otherwise noted.
Ratings : capacitor (μF) / voltage (V) unless otherwise noted.
Rated voltage : 50V except for electrolytic capacitors.

5. COILS:
Unit : m:mH or μH unless otherwise noted.

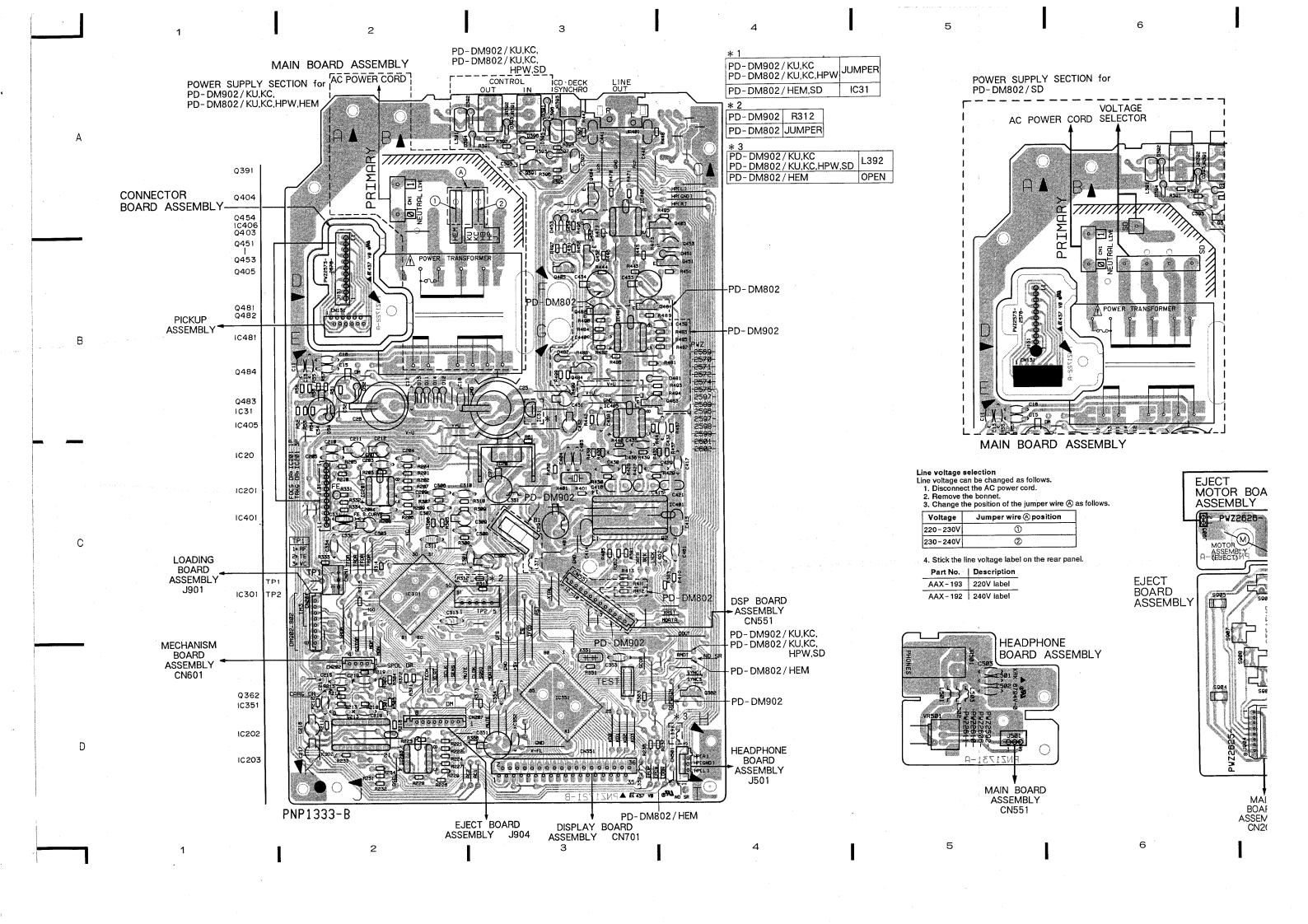
6. VOLTAGE AND CURRENT:
□ : DC voltage (V) in PLAY mode unless otherwise noted.
⇨mA or ⇦mA: DC current in PLAY mode unless otherwise noted.
Value in ( ) is DC current in STOP mode.

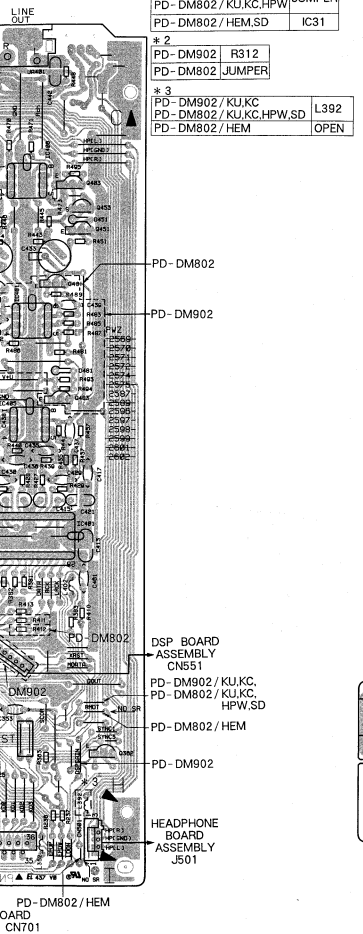
7. OTHERS:
- ➡ : Signal route.
- ⊘ : Adjusting point.
- ▼(Red) : Measurement point.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. SWITCHES (Underline indicates switch position):
MECHANISM BOARD ASSEMBLY
S810: INSIDE
EJECT BOARD ASSEMBLY
S904: LSW2
S905: LSW1
S906: MZS1
S907: EJC1
S908: EJC2
S909: MZS2
PHOTOCOUPLER BOARD ASSEMBLY
S903: OPEN/CHIME
LOADING BOARD ASSEMBLY
S901: LPS1
S902: LPS2
POWER SWITCH ASSEMBLY(PD-DM902/KU)
SWITCH BOARD ASSEMBLY(PD-DM802/KU)
S801: HI-LITE SCAN
S802: RANDOM
S803: POWER STANDBY / ON-STANDBY

DISPLAY BOARD ASSEMBLY
S701: ADLC
S702: REPEAT
S703: TIME
S704: EDIT
S705: DISC6
S706: 5
S707: PROGRAM
S708: MANUAL/TRACK SEARCH (▶▶▶▶▶)
S709: DISC5
S710: 4
S711: +10
S712: MANUAL/TRACK SEARCH (◀◀◀◀◀)
S713: DISC4
S714: 3
S715: DELETE
S716: STOP(■)
S717: DISC3
S718: 2
S719: ≧20
S720: PAUSE(❚❚)
S721: DISC2
S722: 1
S724: PLAY (▶)
S725: DISC1
S726: 6
S728: EJECT (▲) for MAGAZINE 2
S729: MAGAZINE 1
S730: 7
S732: EJECT (▲) for MAGAZINE 1
S733: MAGAZINE 2
S734: 8
S737: FADER
S738: 9
S742: 10
S723: JAZZ
S727: FLAT
S731: DANCE
S735: CHURCH
S739: HALL
S743: STADIUM
(for DSP (PD-DM902/KU only))

9. For SCH-□ on the schematic diagram
•SCH-□ indicates the drawing number of the schematic diagram.
(SCH stands for schematic diagram.)

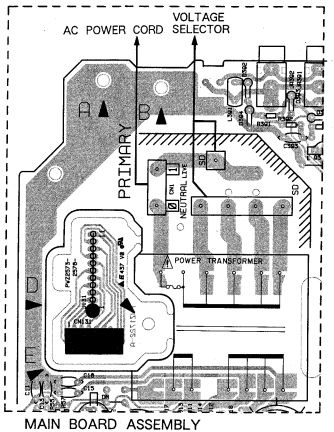

MAIN BOARD ASSEMBLY
POWER SUPPLY SECTION for PD-DM902/KU,KC, PD-DM802/KU,KC,HPW,HEM
AC POWER CORD
PD-DM902/KU,KC, PD-DM802/KU,KC, HPW,SD
CONTROL OUT
CONTROL IN
CD-DECK SYNCHRO
LINE OUT
PRIMARY
CONNECTOR BOARD ASSEMBLY
PICKUP ASSEMBLY
LOADING BOARD ASSEMBLY J901
MECHANISM BOARD ASSEMBLY CN601
POWER TRANSFORMER
PD-DM802
PD-DM902
DSP BOARD ASSEMBLY CN551
PD-DM902/KU,KC, PD-DM802/KU,KC, HPW,SD
PD-DM802/HEM
HEADPHONE BOARD ASSEMBLY J501
EJECT BOARD ASSEMBLY J904
DISPLAY BOARD ASSEMBLY CN701
PNP1333-B
*1
PD-DM902/KU,KC PD-DM802/KU,KC,HPW JUMPER
PD-DM802/HEM,SD IC31
*2
PD-DM902 R312
PD-DM802 JUMPER
*3
PD-DM902/KU,KC PD-DM802/KU,KC,HPW,SD L392
PD-DM802/HEM OPEN
POWER SUPPLY SECTION for PD-DM802/SD
VOLTAGE SELECTOR
AC POWER CORD
MAIN BOARD ASSEMBLY
Line voltage selection
Line voltage can be changed as follows.
1. Disconnect the AC power cord.
2. Remove the bonnet.
3. Change the position of the jumper wire Ⓐ as follows.
Voltage | Jumper wire Ⓐ position
220-230V | ①
230-240V | ②
4. Stick the line voltage label on the rear panel.
Part No. | Description
AAX-193 | 220V label
AAX-192 | 240V label
HEADPHONE BOARD ASSEMBLY
MAIN BOARD ASSEMBLY CN551
EJECT MOTOR BOARD ASSEMBLY
EJECT BOARD ASSEMBLY



＊1	
PD-DM902/KU,KC PD-DM802/KU,KC,HPW	JUMPER
PD-DM802/HEM,SD	IC31

＊2	
PD-DM902	R312
PD-DM802	JUMPER

＊3	
PD-DM902/KU,KC PD-DM802/KU,KC,HPW,SD	L392
PD-DM802/HEM	OPEN

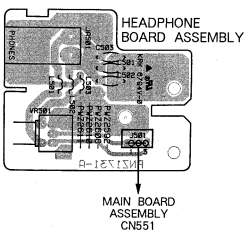


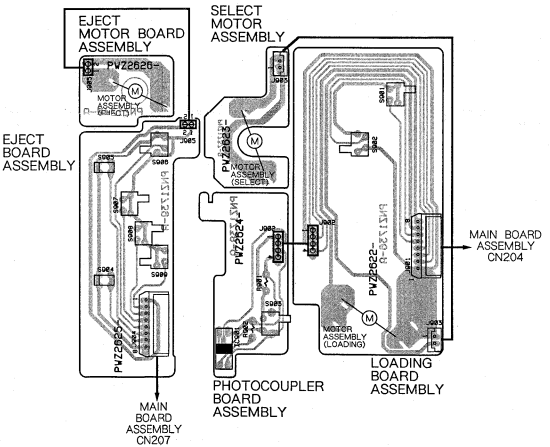
Line voltage selection
Line voltage can be changed as follows.
1. Disconnect the AC power cord.
2. Remove the bonnet.
3. Change the position of the jumper wire Ⓐ as follows.

Voltage	Jumper wire Ⓐ position
220-230V	①
230-240V	②

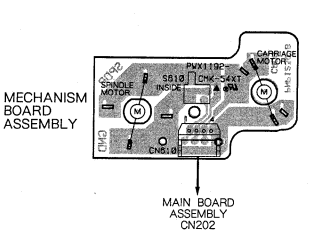
4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label





This P. C. B. connection diagram is viewed from the parts mounted side.



P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

MAIN BOARD ASSEMBLY
CD-DM80S
POWER SUPPLY SECTION for
AC POWER CORD
CD-DM80S/KU,KC,WH,MEM
CD-DM80S/KU,KC
CD-DM80S/KU,KC,WH,2D
CD-DM80S/KU,KC
CD-DM80S/MEM
CD-DM80S/KU,KC,WH,2D
CD-DM80S/KU,KC
CD-DM80S/KU,KC
CD-DM80S/KU,KC,WH,2D
CD-DM80S/MEM

This P. C. B. connection diagram is viewed from the foil side.

PCB-1

MECHANISM BOARD ASSEMBLY

MAIN BOARD ASSEMBLY CN202

POWER SUPPLY SECTION for PD-DM802/SD

AC POWER CORD SELECTOR

VOLTAGE SELECTOR

MAIN BOARD ASSEMBLY

Line voltage selection
Line voltage can be changed as follows.
1. Disconnect the AC power cord.
2. Remove the bonnet.
3. Change the position of the jumper wire Ⓐ as follows.

Voltage	Jumper wire Ⓐ position
220 - 230V	①
230 - 240V	②

4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX - 193	220V label
AAX - 182	240V label

SELECT MOTOR ASSEMBLY

SELECT MOTOR BOARD ASSEMBLY

SELECT BOARD ASSEMBLY

LOADING BOARD ASSEMBLY

PHOTOCOUPLER BOARD ASSEMBLY

MAIN BOARD ASSEMBLY CN204

MAIN BOARD ASSEMBLY CN207

HEADPHONE BOARD ASSEMBLY

MAIN BOARD ASSEMBLY CN351

* 1

PD-DM802/KU,KC	JUMPER
PD-DM802/KU,KC,HPW	
PD-DM802/HEM,SD	IC31

* 2

PD-DM802	R312
PD-DM802	JUMPER

* 3

PD-DM802/KU,KC	L392
PD-DM802/KU,KC,HPW,SD	
PD-DM802/HEM	OPEN

LINE OUT

PD-DM802

PD-DM802

DSP BOARD ASSEMBLY CN351

PD-DM802/KU,KC, HPW,SD

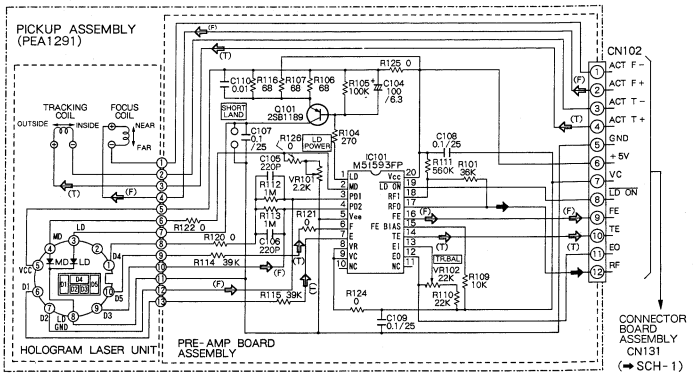
PD-DM802/HEM

PD-DM802

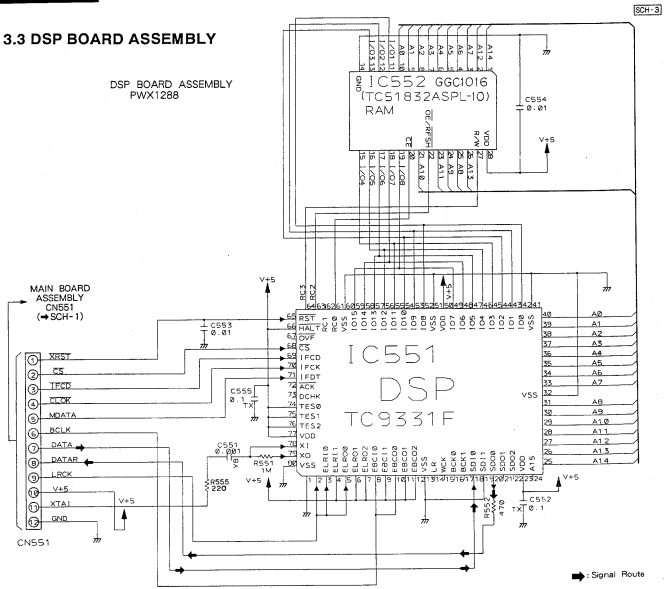
HEADPHONE BOARD ASSEMBLY J501

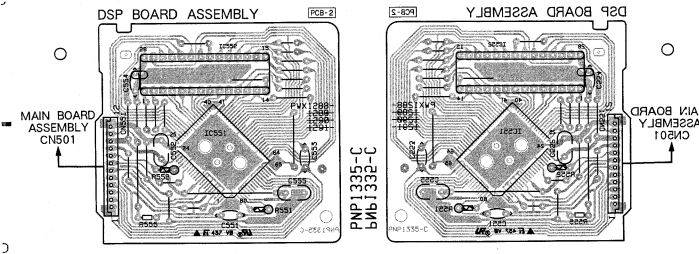
PD-DM802/HEM CN101

3.2 PICKUP ASSEMBLY



3.3 DSP BOARD ASSEMBLY





This P. C. B. connection diagram is viewed from the parts mounted side.

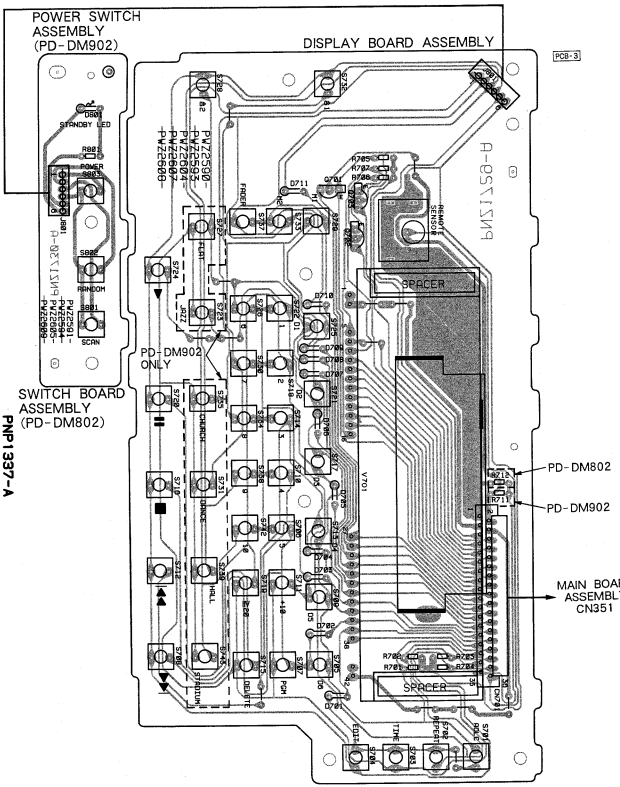
This P. C. B. connection diagram is viewed from the foil side.

SCH-3 DSP BOARD ASSEMBLY

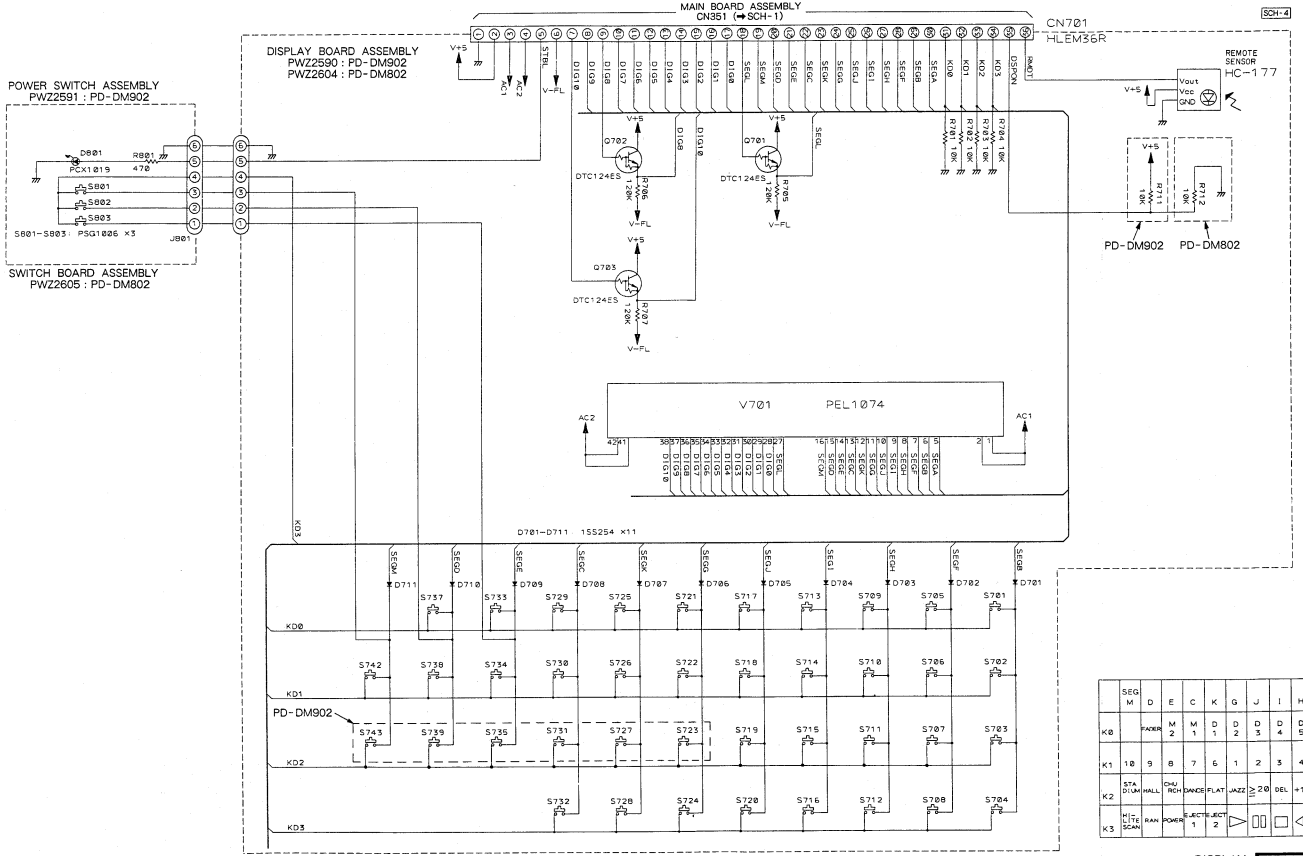
3.4 DISPLAY, POWER SWITCH AND SWITCH BOARD ASSEMBLIES

This P. C. B. connection diagram is viewed from the foil side.

3.4 DISPLAY, POWER SWITCH AND SWITCH BOARD ASSEMBLIES



This P. C. B. connection diagram is viewed from the parts mounted side.



	SEGM	D	E	C	K	G	J	I	H	F	B
KØ		FADER	M2	M1	D1	D2	D3	D4	D5	D6	ADLC
K1	10	9	8	7	6	1	2	3	4	5	REP
K2	STA DIM	HALL	CHU RCH	DANCE	FLAT	JAZZ	20	DEL	+10	PGM	TIME
K3	KEY LITE SCAN	RAN	POWER	EJECT 1	EJECT 2	▷	▯▯	□	◁◁	▷▷	EDIT

4. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.

4.1 LIST OF ASSEMBLIES

PD-DM902/KU

NSP		MOTHER BOARD ASSEMBLY	PWM1788
NSP		├ CONNECTOR BOARD ASSEMBLY	PWZ2573
		└ MAIN BOARD ASSEMBLY	PWZ2587
		DSP BOARD ASSEMBLY	PWX1288
NSP		SUB BOARD ASSEMBLY	PWM1790
		├ DISPLAY BOARD ASSEMBLY	PWZ2590
NSP		├ POWER SWITCH ASSEMBLY	PWZ2591
NSP		└ HEADPHONE BOARD ASSEMBLY	PWZ2592

PD-DM802/KU

NSP		MOTHER BOARD ASSEMBLY	PWM1792
NSP		├ CONNECTOR BOARD ASSEMBLY	PWZ2573
		└ MAIN BOARD ASSEMBLY	PWZ2596
NSP		SUB BOARD ASSEMBLY	PWM1798
		├ DISPLAY BOARD ASSEMBLY	PWZ2604
NSP		├ SWITCH BOARD ASSEMBLY	PWZ2605
NSP		└ HEADPHONE BOARD ASSEMBLY	PWZ2606

PD-DM902/KU and PD-DM802/KU

NSP		2MAGAZINE MECHANISM ASSEMBLY	PXA1498
NSP		├ 2MAGAZINE MECHANISM BOARD ASSEMBLY	PWX1292
NSP		│ ├ LOADING BOARD ASSEMBLY	PWZ2622
NSP		│ ├ SELECT MOTOR ASSEMBLY	PWZ2623
NSP		│ ├ PHOTOCOUPLER BOARD ASSEMBLY	PWZ2624
NSP		│ ├ EJECT BOARD ASSEMBLY	PWZ2625
NSP		│ └ EJECT MOTOR BOARD ASSEMBLY	PWZ2626
NSP		└ SERVO MECHANISM ASSEMBLY M	PXA1512
NSP		└ MECHANISM BOARD ASSEMBLY	PWX1192

Mark	No.	Description	Part No.

4.2 PD-DM902/KU

CONNECTOR BOARD ASSEMBLY

OTHERS

	CN131	FFC CONNECTOR (12P)	12FM-1.0ST

MAIN BOARD ASSEMBLY

SEMICONDUCTORS

		IC406	BA15218
		IC301	CXD2515Q
⚠		IC201, IC203	LA6517
⚠		IC202	LA6520
		IC405, IC481	NJM4558DX
		IC401	PD2026B
		IC351	PD3240A
⚠		IC20	PQ05RR12
		Q391	2SC1740S
		Q403, Q404, Q481, Q482	2SD2144S
		Q453, Q454	2SJ103
		Q362, Q405, Q451, Q452, Q483, Q484	DTC124ES
⚠		D11-D14, D52	11ES2
		D391-D397, D451-D454, D481, D482	1SS254
		D54	MTZJ20A

COILS

		L351, L371, L401	LAU010K
		L352	LAUR22K
		L391, L392, L395, L396, L402	LAUR47K

CAPACITORS

		C435-C438	CCCCH050C50
		C310	CCCCH101J50
		C403	CCCCH120J50
		C404	CCCCH220J50
		C439, C440	CCCCH330J50
		C429, C430	CCCCH390J50
		C354, C393	CCCSL101J50
		C331	CCCSL181J50
		C203, C204, C208, C209, C213, C214, C332	CCCSL331J50
		C52	CEAS101M35
		C26	CEAS102M16
		C433, C434	CEAS220M25
		C211, C212, C216, C217, C303, C431, C432	CEAS330M16
		C25	CEAS332M16
		C54	CEAS470M35
		C27, C29, C302, C351	CEAS471M6R3
		C309	CEASR47M50
		C421	CFTXA103J50
		C397, C413-C416	CFTXA104J50
		C441, C442	CFTXA152J50
		C218, C308	CGCYX103K25
		C307	CGCYX473K25
		C306	CKCYB152K50
		C311	CKCYB182K50
		C334	CKCYB822K50
		C11, C13, C15-C18, C205, C210, C215, C219, C301, C313, C352, C353, C461	CKCYF103Z50
		C417	CKCYF473Z50

RESISTORS

		All resistors	RD1/6PM□□□J

OTHERS

	X401	CRYSTAL RESONATOR(16.9344MHz)	PSS1008
	X351	CERAMIC RESONATOR(8MHz)	YSS1031
	CN351	FFC CONNECTOR(36P)	HLEM36S
	JA401	2P PIN JACK(LINE OUT)	PKB1009
	JA391, JA392	JACK/12V(CONTROL)	PKN1004
	JA393	MINI JACK(CD・DECK SYNCHRO)	PKN1005
⚠	TERMINAL		RKC-061

DSP BOARD ASSEMBLY

SEMICONDUCTORS

		IC552	GGC1016 (TC51832ASPL-10)
		IC551	TC9331F

CAPACITORS

		C552, C555	CFTXA104J50
		C551	CKCYB102K50
		C553, C554	CKCYF103Z50

RESISTORS

		All resistors	RD1/6PM□□□J

DISPLAY BOARD ASSEMBLY

SEMICONDUCTORS

		Q701-Q703	DTC124ES
		D701-D711	1SS254

SWITCHES

		S701-S735, S737-S739, S742, S743	PSG1006

RESISTORS

		All resistors	RD1/6PM□□□J

Mark	No.	Description	Part No.

OTHERS

	CN701	FFC CONNECTOR(36P)	HLEM36R
	V701	FL INDICATOR TUBE	PEL1074
	REMOTE SENSOR		HC-177

POWER SWITCH ASSEMBLY

SEMICONDUCTOR

		D801	PCX1019

SWITCHES

		S801-S803	PSG1006

RESISTOR

		R801	RD1/6PM471J

HEADPHONE BOARD ASSEMBLY

COILS

		L501-L503	LAUR22K

CAPACITORS

		C501, C502	CKCYF103Z50
		C503	CKCYF473Z50

RESISTOR

		VR501	PCS1003

OTHERS

	JA501	JACK(PHONES)	RKN1002

Mark	No.	Description	Part No.

4.3 PD-DM802/KU

CONNECTOR BOARD ASSEMBLY

OTHERS

	CN131	FFC CONNECTOR(12P)	12FM-1.0ST

MAIN BOARD ASSEMBLY

SEMICONDUCTORS

	IC406	BA15218
	IC301	CXD2515Q
⚠	IC201, IC203	LA6517
⚠	IC202	LA6520
	IC405	NJM4558DX
	IC401	PD2026B
	IC351	PD3240A
⚠	IC20	PQ05RR12
	Q391	2SC1740S
	Q403, Q404	2SD2144S
	Q453, Q454	2SJ103
	Q362, Q405, Q451, Q452	DTC124ES
⚠	D11-D14, D52	11ES2
	D391-D397, D451-D454	1SS254
	D54	MTZJ20A

COILS

	L351, L401	LAU010K
	L352	LAUR22K
	L391, L392, L395, L396, L402	LAUR47K

CAPACITORS

	C435-C438	CCCH050C50
	C310	CCCH101J50
	C403	CCCH120J50
	C404	CCCH220J50
	C429, C430	CCCH390J50
	C354, C393	CCCSL101J50
	C331	CCCSL181J50
	C203, C204, C208, C209, C213, C214, C332	CCCSL331J50
	C52	CEAS101M35
	C26	CEAS102M16
	C433, C434	CEAS220M25
	C211, C212, C216, C217, C303, C431, C432	CEAS330M16
	C25	CEAS332M16
	C54	CEAS470M35
	C27, C29, C302, C351	CEAS471M6R3
	C309	CEASR47M50
	C421	CFTXA103J50
	C397, C413-C416	CFTXA104J50
	C441, C442	CFTXA152J50
	C218, C308	CGCYX103K25
	C307	CGCYX473K25
	C306	CKCYB152K50
	C311	CKCYB182K50
	C334	CKCYB822K50

Mark	No.	Description	Part No.
	C11, C13, C15-C18, C205, C210, C215, C219, C301, C313, C352, C353, C461		CKCYF103Z50
	C417		CKCYF473Z50

RESISTORS

	All resistors		RD1/6PM□□□J

OTHERS

	X401	CRYSTAL RESONATOR(16.9344MHz)	PSS1008
	X351	CERAMIC RESONATOR(8MHz)	YSS1031
	CN351	FPC CONNECTOR(36P)	HLEM36S
	JA401	2P PIN JACK(LINE OUT)	PKB1009
	JA391, JA392	JACK/12V(CONTROL)	PKN1004
	JA393	MINI JACK(CD•DECK SYNCHRO)	PKN1005
⚠	TERMINAL		RKC-061

DISPLAY BOARD ASSEMBLY

SEMICONDUCTORS

	Q701-Q703	DTC124ES
	D701-D711	1SS254

SWITCHES

	S701-S722, S724-S726, S728-S730, S732-S734, S737, S738, S742	PSG1006

RESISTORS

	All resistors	RD1/6PM□□□J

OTHERS

	CN701 FFC CONNECTOR(36P)	HLEM36R
	V701 FL INDICATOR TUBE	PEL1074
	REMOTE SENSOR	HC-177

SWITCH BOARD ASSEMBLY

SEMICONDUCTOR

	D801	PCX1019

SWITCHES

	S801-S803	PSG1006

RESISTOR

	R801	RD1/6PM471J

HEADPHONE BOARD ASSEMBLY

COILS

	L501-L503	LAUR47K

CAPACITORS

	C501, C502	CKCYF103Z50
	C503	CKCYF473Z50

RESISTOR

	VR501	PCS1003

OTHERS

	JA501 JACK(PHONES)	RKN1002

Mark	No.	Description	Part No.

4.4 PD- DM902/KU AND PD- DM802/KU

LOADING BOARD ASSEMBLY

SWITCHES

	S901, S902	DSG1016

SELECT MOTOR ASSEMBLY

Select motor assembly has not service part.

PHOTOCOUPLER BOARD ASSEMBLY

SEMICONDUCTOR

	Q901	GP1A52HR

SWITCH

	S903	PSG1010

RESISTORS

	All resistors	RD1/6PM□□□J

EJECT BOARD ASSEMBLY

SWITCHES

	S906-S909	DSG1016
	S904, S905	PSG1012

EJECT MOTOR BOARD ASSEMBLY

Eject motor board assembly has not service part.

MECHANISM BOARD ASSEMBLY

SWITCH

	S610	DSG1016

5. ADJUSTMENTS

5.1 HEIGHT ADJUSTMENT OF THE SENSOR PLATE

1. Adjust screw Ⓐ until the top of the sensor plate is 9mm above the main chassis. (Figure 5-1)
2. In the power cord is unplugged, unsolder the loading board assembly which soldering the loading motor.
3. Plug the power cord into the AC socket, and activate TEST MODE. (See page 35.)
4. Insert the CD magazine into the Opening of MAGAZINE [2].
5. Press DISC 6 of the DISC NUMBER buttons twice in succession.
6. When the turn drive lever is moved and stopped at the DISC 6 position of MAGAZINE [2], unplug the power cord from the AC socket within 5 seconds.
7. Check that the upper side of the turn drive lever is 0mm $^{+0mm}_{-0.2mm}$ above the top of the DISC 6 tray (tray 6). (Figure 5-1, MAGAZINE [2])
8. When the check is completed, perform as follows.
   - If the upper side position of the turn drive lever is slanted upward to the plus direction, turn screw Ⓐ clockwise to fine-adjust the sensor plate mounting position downward. Then repeat steps 3 through 6.
   - If the upper side position of the turn drive lever is slanted downward to the minus direction, turn screw Ⓐ counterclockwise. Then repeat steps 3 through 6.
9. Plug the power cord into the AC socket and eject the CD magazine by pressing the MAGAZINE [2] EJECT (⏏) button.
10. Insert the CD magazine into the Opening of MAGAZINE [1]. Perform the same check for MAGAZINE [2] as for MAGAZINE [1]
11. Eject the CD magazine by pressing the MAGAZINE [1] EJECT (⏏) button.
12. Solder the loading motor in the power cord is unplugged.

Note: In disc selection, the servo mechanism section moves vertically. This servo mechanism section is designed to reduce the elevation speed at the position of the tray preceding the specified tray of the disc. This permits the elevation movement to be stopped exactly at specified disc tray.

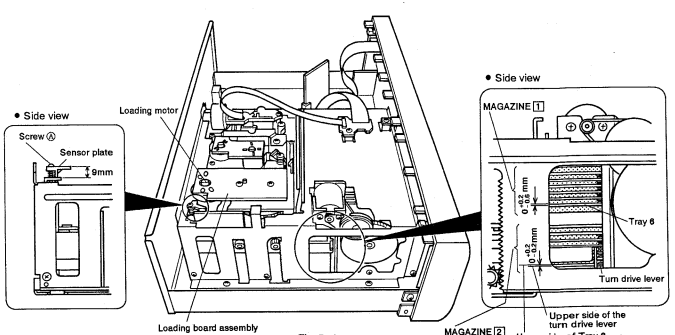


Fig. 5-1

5.2 CD PLAYER ADJUSTMENT

● Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 – 4, the pickup block may be defective.

● Measuring Instruments and Tools

Step	Item	Test Point	Adjustment Location
1	Focus S curve verification		None
2	Tracking error balance verification	TP1, Pin 2 (TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin 1 (RF)	None

Note : The digital servo IC (CXD2515Q) being used in this set has the following functions and does not provide focus offset, focus servo loop gain and tracking servo loop gain adjustments.

1. Average function
   For accurate servo control, VC, FCS. ERR and RF average measurements are performed and the measured values are compensated through a compensation circuit.
   Thus, volume control for FCS. OFS adjustment is not provided.
2. Auto gain control function
   The gain inside the filter is automatically adjusted to obtain a proper gain in the servo loop. This function permits the optimum gain to be obtained on each disc.
   Thus, volume controls for FCS. GAIN and TRK. GAIN adjustments are not provided.
   The gain adjustment is done before TOC reading.

● Abbreviation table

FCS. ERR	:Focus Error
TRK. ERR	:Tracking Error
FCS GAN	:Focus Gain
TRK GAN	:Tracking Gain
FCS. IN	:Focus In
TRK. IN	:Tracking In

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. Standard tools

● Test Point and Adjustment Variable Resistor Positions

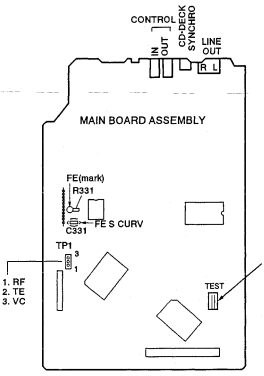


Figure 1 Adjustment Locations

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.
1. Unplug the power cord from the AC socket.
2. Short the test mode jumper wires. (See Figure 1.)
3. Plug the power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Unplug the power cord from the AC socket.

[Operations of the keys in test mode]

Code	Key Name	Function in Test Mode	Explanation
	PGM (PROGRAM)	Focus servo close	The laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled up, then the actuator is lowered and raised three times and returned to its original position.
▷	PLAY	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
□□	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function in Test Mode	Explanation
⏮ ◁◁	MANUAL/ TRACK SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
▷▷ ⏭	MANUAL/ TRACK SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
	REPEAT	Auto gain adjustment	• Perform the tracking and focus gain adjustments. • The adjustment is performed when this key is pressed during playback. For a proper adjustment, perform it at the inner periphery of a disc. When the key is pressed in other statuses than playback, be sure to disconnect the AC power cord from the AC socket and perform the necessary settings for test mode again.
□	STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed.
⏏	EJECT	CD magazine eject	Stores Disc 1 in the CD magazine, then ejects the CD magazine. However, even though the CD magazine is ejected, the pickup does not return to the park position. Even if the CD magazine is mounted again, the pickup remains where it is.

Note : • When inserting the CD magazine, disc 1 of the magazine is loaded automatically.
• DISC NUMBER buttons (DISC 1 – DISC 6) and MAGAZINE buttons (MAGAZINE 1 and MAGAZINE 2) function properly on the test mode conditions.
If it does not function, when you press the DISC NUMBER button once, press the same button twice more.
When a CD magazine is inserted into MAGAZINE [1], pressing any of DISC NUMBER buttons (DISC 1 – DISC 6) selects the disc in MAGAZINE [1].

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.

Here is the key operation sequence for playing back a disc in test mode.

PGM(PROGRAM)	Lights up the laser diode and closes the focus servo.
⇩	
PLAY ▷	Starts the spindle motor and closes the spindle servo.
⇩	
PAUSE ⏸	Closes the tracking servo.
⇩	
REPEAT	Auto gain adjustment.

Wait at least 2–3 seconds between each of these operations.

1. Focus Error Signal (Focus S Curve) Verification

● Objective ● Symptom when out of adjustment	To judge whether the pickup is ok or not by observing the focus error signal. The pickup is judged from the amplitude of the tracking error signal (as discussed in the section on adjusting the tracking error balance) and the waveform for the focus error signal.		
● Measurement instrument connections	Connect the oscilloscope to R331 lead wire (marking side) and GND of it to TP1, Pin 3 (VC). [Settings] 100 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stop None YEDS-7

[Procedure]

1. Connect TP1 Pin 3 to ground. Short-circuit the both side of C331.
2. Mount the disc.
3. While watching the oscilloscope screen, press the PROGRAM key and observe the waveform in Figure 2 for a moment. Verify that the amplitude is at least 2.5 Vp-p and that the positive and negative amplitude are about equal. Since the waveform is only output for a moment when the PROGRAM key is pressed, press this key over and over until you have checked the waveform.

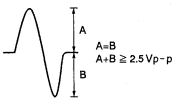


Figure 2

[Judging the pickup]

Do not judge the pickup until all the adjustment have been made correctly. In the following cases, there may be something wrong with the pickup.

1. The tracking error signal amplitude is extremely small (less than 2 Vp-p).
2. The focus error signal amplitude is extremely small (less than 2.5 Vp-p).
3. The positive and negative amplitudes of the focus error signal are extremely asymmetrical (2 : 1 ratio or more).
4. The RF signal is too small (less than 0.8 Vp-p) and even if VR101 (laser power) is adjusted , the RF signal can not be brought up to the standard level.

2. Tracking Error Balance Verification

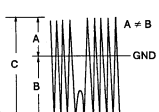
● Objective ● Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR) and GND of it to TP1, Pin 3 (VC). (This connection may be via a low pass filter.) [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open None YEDS-7

[Procedure]

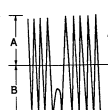
1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL/TRACK SEARCH FWD ▷▷ ▷▷| or REV |◁◁ ◁◁ key.
2. Press the PGM (PROGRAM) key, then the PLAY ▷ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

When $A \geqq B$, $\frac{A-B}{C} \times \frac{1}{2} \leqq 0.05$

When $A < B$, $\frac{B-A}{C} \times \frac{1}{2} \leqq 0.05$



When there is a DC component



When there is no DC component

3. Pickup Radial/Tangential Tilt Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken;some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF) and GND of it to TP1, Pin 3 (VC). [Settings] 20 mV/division 200 ns/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw YEDS-7

[Procedure]

1. Press the MANUAL/TRACK SEARCH FWD ▷▷/▷▷| or REV |◁◁/◁◁ key to move the pickup to halfway across the disc (R=35mm).
   Press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 4).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.

Note:Radial and tangential mean the directions relative to the disc shown in Figure 3.

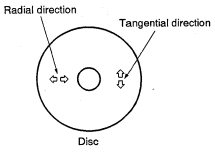
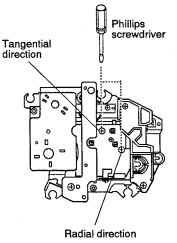


Figure 3



Adjustment locations

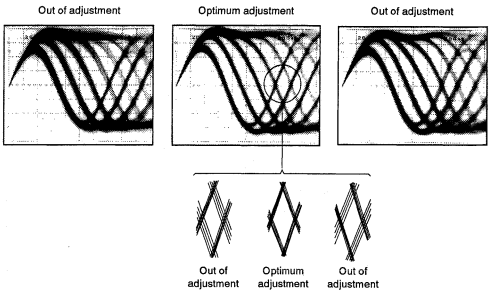


Figure 4 Eye pattern

4. RF Level Verification

● Objective	To verify the playback RF signal amplitude		
● Symptom when out of adjustment	No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF) and GND of it to TP1, Pin 3(VC). [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play None YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL/TRACK SEARCH FWD ▷▷/▷▷| or REV |◁◁/◁◁ key, then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the respective servos and put the player into play mode.
2. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.

6. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ PD3240A (IC351)

· System Control

● Pin Function

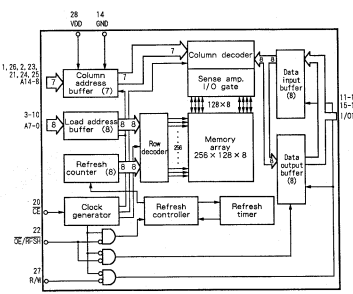
No.	Mark	Name	Function	I/O	Reset	Initial
1	P04/AN4	LPS1	Load position SW1 SW1=SW2=H : HOME	I	–	–
2	P05/AN5	LPS2	Load position SW2 SW1=SW2=L : CLAMP	I	–	–
3	P06/AN6	DCNT	Disc count pulse input	I	–	–
4	P07/AN7	DCHM	Disc selector home SW (L : HOME)	I	–	–
5	AVss	Not used	(Reference voltage for A/D converter) : GND	GND	–	–
6	TEST	Not used	(TEST pin for manufacturer) : GND	GND	–	–
7	X2	Not used	(Connect pin of sub - clock oscillator) : OPEN	–	–	–
8	X1	Not used	(Connect pin of sub - clock oscillator) : Vcc	+5V	–	–
9	Vss	Vss	GND	–	–	–
10	OSC1	OSC1	Connect pins of system - clock oscillator (8MHz)	–	–	–
11	OSC2	OSC2		–	–	–
12	$\overline{RES}$	$\overline{RST}$	CPU reset (L : reset)	I	–	–
13	P10/$\overline{IRQ0}$	RMDT	Remote control data input	I	–	–
14	P11/$\overline{IRQ1}$	SCOR	Subcode sync. S0+S1 input	I	–	–
15	P12/$\overline{IRQ2}$	$\overline{DLAT}$	D/A conveter control data latch pulse	O	–	H
16	P13/$\overline{IRQ3}$	$\overline{XRST}$	Reset output for each LSIs.	O	–	L
17	P14/$\overline{IRQ4}$	$\overline{LDON}$	Laser diode output (L : ON, H : OFF)	O	–	H
18	P10/IRQ5/TMOE	Not used	(Open)	O	–	L
19	P16/EVENT	SYNC1	Synchronous signal input	I	–	–
20	P33/FS27	KD3	Key data input	I	–	–
21	P32/FS26	KD2		I	–	–
22	P31/FS25	KD1		I	–	–
23	P30/FS24	KD0/TEST	Key data input/TEST mode requirement input (H : TEST, L : Normal mode)	I	–	–
24	P47/FS23	$\overline{MUTB}$	Muting output (L : MUTE)	O	–	L
25	P46/FS22	SYNC3	Synchronous signal output	O	–	L
26	P45/FS21	DSGAIN	Analog gain control output for DSP	O	–	L
27	P44/FS20	$\overline{EPUP}$	Output port for eject Magazine 2 : EPUP=L, EPDW=H	O	–	H
28	P43/FS19	$\overline{EPDW}$	Magazine 1 : EPUP=H, EPDW=L	O	–	H
29	P42/FS18	STBL	Standby LED output (L : Light out, H : Light), OSCE output	O	–	L
30	P41/FS17	DSPON	DSP switching port (L : Not exist=PD - DM802, H=Exist=PD - DM902)	I	–	–
31	P40/FS16	SEG A	Segment output for FL drive	O	– 26V	– 26V
32	P50/FS15	SEG B		O	– 26V	– 26V
33	P51/FS14	SEG F		O	– 26V	– 26V
34	P52/FS13	SEG H		O	– 26V	– 26V
35	P53/FS12	SEG I		O	– 26V	– 26V
36	P54/FS11	SEG J		O	– 26V	– 26V
37	P55/FS10	SEG G		O	– 26V	– 26V
38	P56/FS9	SEG K		O	– 26V	– 26V
39	P57/FS8	SEG C		O	– 26V	– 26V
40	P17/Vdisp	Vdisp	– 26v	I	–	–
41	P60/FD0/FS7	SEG E	Segment output for FL drive	O	– 26V	– 26V
42	P61/FD1/FS8	SEG D		O	– 26V	– 26V
43	P62/FD2/FS5	SEG M		O	– 26V	– 26V
44	P63/FD3/FS4	SEG L		O	– 26V	– 26V
45	P64/FD4/FS3	D0	DIGIT output for FL drive	O	–	⎍
46	P65/FD5/FS2	D1		O	–	⎍
47	P66/FD6/FS1	D2		O	–	⎍
48	P67/FD7/FS0	D3		O	–	⎍
49	P70/FD8	D4		O	–	⎍
50	P71/FD9	D5		O	–	⎍

No.	Mark	Name	Function	I/O	Reset	Initial
51	P72/FD10	D6	DIGIT output for FL drive	O	–	⎍
52	P73/FD11	D7		O	–	⎍
53	P74/FD12	D8		O	–	⎍
54	P75/FD13	D9		O	–	⎍
55	P76/FD14	D10		O	–	⎍
56	P77/FD15	MUTE	Muting output (H : MUTE)	O	–	H
57	Vcc	Vcc	+5V	–	–	–
58	P80	DSDW	Disc selector At UP : DSUP=H, DSDW=L	O	–	L
59	P81	DSUP	Output port At DOWN : DSUP=L, DSDW=H	O	–	L
60	P82	LIN	Disc tray At return : LIN=H, LOUT=L	O	–	L
61	P83	LOUT	Output port At loading : LIN=L, LOUT=H	O	–	L
62	P84	$\overline{LSW2}$	Magazine 2 lock complete SW input (L : Lock complete)	I	–	–
63	P85	$\overline{LSW1}$	Magazine 1 lock complete SW input (L : Lock complete)	I	–	–
64	P86	MZS1	Magazine 1 discrimination input (L : 6 discs, H : Single)	I	–	–
65	P87	EJC1	Eject cam 1 input L : 1 eject; EJC1, 2=H : Home	I	–	–
66	P90/PWM	EJC2	Eject cam 2 input L : 2 eject	I	–	–
67	P91/SCK1	CLOK	LSI serial clock	O	–	H
68	P92/SI1	SQSO	Subcode Q data serial input	I	–	–
69	P93/SO1	MDATA	LSI control data serial output	O	–	L
70	P94/SCK2	SCLK	Clock output for reading SENS serial data	O	–	H
71	P95/SI2/CS	SENS	Multi mode input of LSI operation state	I	–	–
72	P96/SO2	$\overline{XLAT}$	Latch pulse of LSI control data	O	–	H
73	P97/UD	FCOK	Focus OK input (H : OK)	I	–	–
74	PA0	$\overline{CS}$	Chip select output for DSP	O	–	H
75	PA1	$\overline{IFCD}$	Command / Data discrimination output for DSP	O	–	H
76	AVcc	AVcc	+5V	+5V	–	–
77	P00/AN0	GFS	Frame sync. lock input (H : OK)	I	–	–
78	P01/AN1	MZS2	Magazine 2 discrimination input (L : 6discs, H : single)	I	–	–
79	P02/AN2	—	Not used (Open)	I	–	–
80	P03/AN3	—	Not used (Open)	I	–	–

■ GGC1016, (TC51832ASPL-10) (IC552)

• 32,768 words × 8 bit CMOS QUASI-STATIC RAM

● Block Diagram



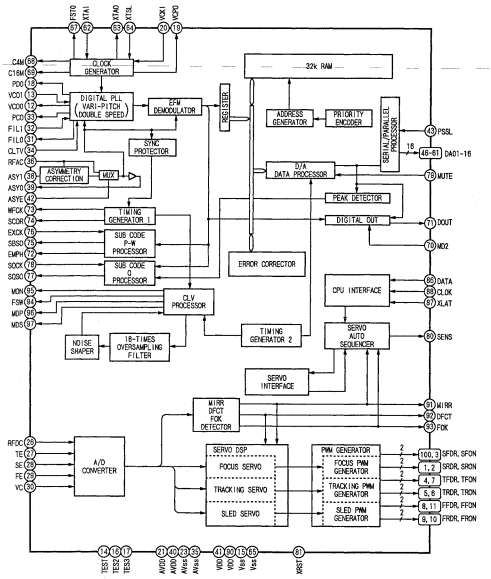
● Pin Function

No.	Name	Function
1-10, 21, 23-26	A0-A14	Address input
11-13, 15-19	I/O1-I/O8	Data input/output
14	GND	Ground
20	$\overline{CE}$	Chip enable input
22	$\overline{OE/RFSH}$	Output enable input/Refresh input
27	R/W	Read/write input
28	VDD	Power supply voltage

■ CXD2515Q (IC301)

· Digital signal processor with digital servo

● Block Diagram



● Pin Function

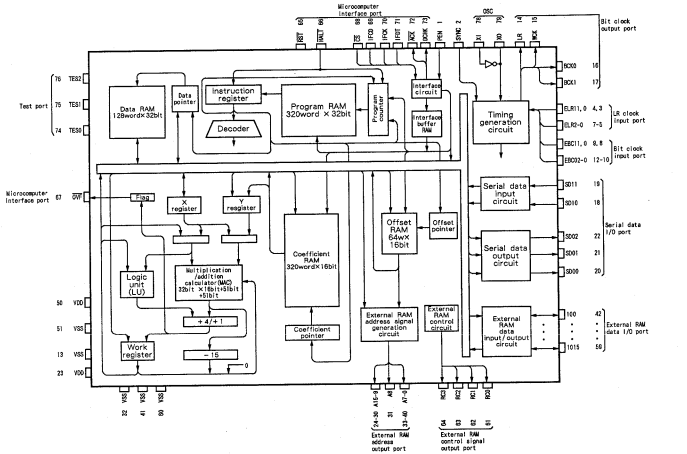
No.	Name	I/O	Function
1	SRON		
2	SRDR	O	Sled drive output
3	SFON		
4	TFDR		
5	TRON	O	Tracking drive output
6	TRDR		
7	TFON		
8	FFDR		
9	FRON	O	Focus drive output
10	FRDR		
11	FFON		
12	VCOO	O	Oscillation circuit output for analog EFM PLL
13	VCOI	I	Oscillation circuit input for analog EFM PLL flock=8.6436MHz
14	TEST	I	Test pin, usually connect to GND
15	Vss	–	Digital GND
16	TES2	I	TEST pin, usually connect to GND
17	TES3		
18	PDO	O	Charge pump output for analog EFM PLL
19	VPCO	O	PLL Charge pump output for variable pitch
20	VCKI	I	Clock input from VCO for variable pitch fcenter=16.9344MHz
21	AVDD	–	Analog power supply voltage
22	IGEN	I	Connect the reference resistor of current source for OP amp.
23	AVss	–	Analog GND
24	ADII	I	A/D converter input pin
25	ADIO	O	OP amp. output pin
26	RFDC	I	RF signal input. Input range 2.15 - 5.0V (VDD=AVDD=at 5.0V)
27	TE	I	Tracking error signal input. Input range 2.5V ± 1.0V (VDD=AVDD=at 5.0V)
28	SE	I	Sled error signal input. Input range 2.5V ± 1.0V (VDD=AVDD=at 5.0V)
29	FE	I	Focus error signal input. Input range 2.5V ± 1.0V (VDD=AVDD=at 5.0V)
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge pump output for master PLL
34	CLTV	I	VCO control voltage input for master
35	AVss	–	Analog GND
36	RFAC	I	EFM signal input
37	BIAS	I	Constant current input of asymmetry circuit
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output (L=Vss, H=VDD)
40	AVDD	–	Analog power supply voltage
41	VDD	–	Digital power supply voltage
42	ASYE	I	Asymmetry circuit ON/OFF (L=OFF, H=ON)
43	PSSL	I	Switching input of audio data output mode. Serial output for L and parallel output for H.
44	WDCK	O	48 bit slot D/A interface. Word clock f=2Fs
45	LRCK	O	48 bit slot D/A interface. LR clock f=Fs
46	DA16	O	DA16 output at PSSL=1. Serial data of 48 bit slot at PSSL=0.
47	DA15	O	DA15 output at PSSL=1. Bit clock of 48 bit slot at PSSL=0.
48	DA14	O	DA14 output at PSSL=1. Serial data of 64 bit slot at PSSL=0.
49	DA13	O	DA13 output at PSSL=1. Bit clock of 64 bit slot at PSSL=0.
50	DA12	O	DA12 output at PSSL=1. LR clock of 64 bit slot at PSSL=0.

No.	Name	I/O	Function
51	DA11	O	DA11 output at PSSL=1. GTOP output at PSSL=0.
52	DA10	O	DA10 output at PSSL=1. XUGF output at PSSL=0.
53	DA09	O	DA09 output when PSSL=1. XPLCK output when PSSL=0.
54	DA08	O	DA08 output when PSSL=1. GFS output when PSSL=0.
55	DA07	O	DA07 output when PSSL=1. RFCK output when PSSL=0.
56	DA06	O	DA06 output when PSSL=1. C2PO output when PSSL=0.
57	DA05	O	DA05 output when PSSL=1. XRAOF output when PSSL=0.
58	DA04	O	DA04 output when PSSL=1. MNT3 output when PSSL=0.
59	DA03	O	DA03 output when PSSL=1. MNT2 output when PSSL=0.
60	DA02	O	DA02 output when PSSL=1. MNT1 output when PSSL=0.
61	DA01	O	DA01 output when PSSL=1. MNT0 output when PSSL=0.
62	XTAI	I	X'tal oscillation circuit input. 16.9344MHz or 33.8688MHz input.
63	XTAO	O	X'tal oscillation circuit output.
64	XTSL	I	X'tal selection input. "L" for 16.9344MHz and "H" for 33.8688MHz.
65	Vss	–	Digital GND
66	FSTI	I	Input for the 2/3 divided frequency of pins 62 and 63.
67	FSTO	O	Output for the 2/3 divided frequency of pins 62 and 63. Fixed at variable pitch.
68	C4M	O	Output of 4.2336MHz. Simultaneously charges at variable pitch.
69	C16M	O	Output of 16.9344MHz. Simultaneously charges at variable pitch.
70	MD2	I	Digital - out ON/OFF control (L=OFF, H=ON)
71	DOUT	O	Digital - out output
72	EMPH	O	Playback disc emphasis mode output ("H" for playback of a disc with emphasis and "L" for a disc without emphasis.)
73	WFCK	O	WFCK output
74	SCOR	O	Subcode sync. output (H : when either subcode sync. S0 or S1 is detected.)
75	SBSO	O	Serial output of Sub P - W.
76	EXCK	I	Clock input for SBSO lead out.
77	SQSO	O	Sub Q 80 bit output. PCM peak data and level data 16 bit output.
78	SQCK	I	Clock input for SQSO lead out.
79	MUTE	I	Mute switch ("H" for mute)
80	SENS	O	SENS output. Output to CPU.
81	XRST	I	System reset. ("L" for reset)
82	DIRC	I	It is used at 1 track jump.
83	SCLK	I	Clock for reading the SENS serial data.
84	DFSW	I	DFCT switch ("H" for DFCT circuit is OFF.)
85	ATSK	I	Pin for unti - shock
86	DATA	I	Serial data input from CPU.
87	XLAT	I	Latch input from CPU.
88	CLOK	I	Serial data transmission clock input from CPU.
89	COUT	O	Count signal output of track number.
90	Vdd	–	Digital power supply voltage
91	MIRR	O	Mirror signal output
92	DFCT	O	Defect signal output
93	FOK	O	Focus OK output
94	FSW	O	Output filter switching output of the spindle motor.
95	MON	O	ON - OFF control output of the spindle motor.
96	MDP	O	Servo control of the spindle motor.
97	MDS	O	
98	LOCK	O	Outputs "H" when GFS undergoes sampling at 460Hz. Outputs "L" when L is provided 8 times continuously.
99	SSTP	I	Detection signal input of disc innermost position.
100	SFDR	O	Sled drive output.

■ TC9331F (IC551)

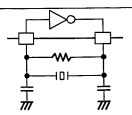
• Digital signal processor

● Block Diagram

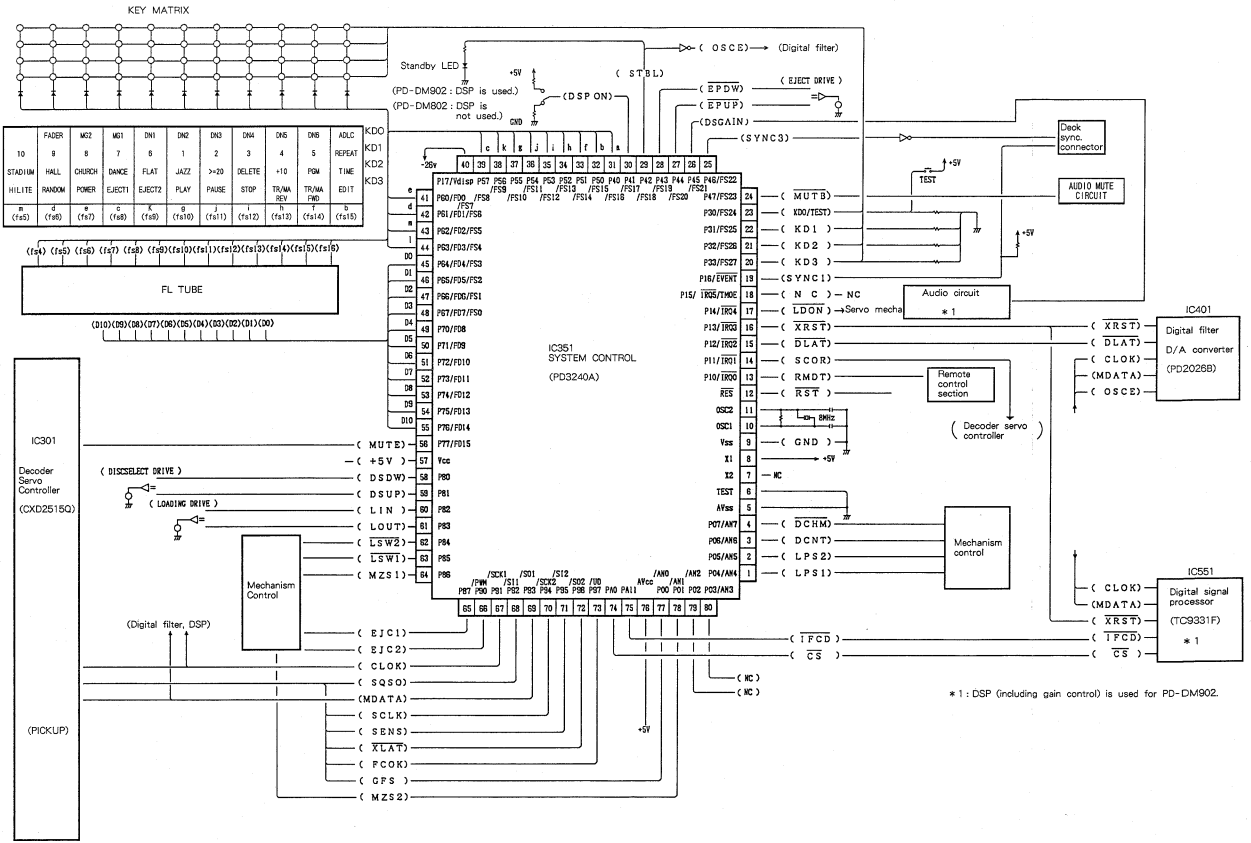


● Pin Function

No.	Name	I/O	Function		Remark
1	PEN	I	Parity check enable input (H:Enable, L:Disable) Set the parity check (odd parity) practice of the interface data.		With pull − up resistor
2	SYNC	I	Sync. signal input. Program counter is forced set to 0 by SYNC signal. And the polarity is set by the microcomputer control.		Schmitt input with pull − up resistor
3	ELRI0	I	LR clock input. Input LR clock for SDI 0/1 data.	For SDI 0 data input	
4	ELRI1			For SDI 1 data input	
5	ELRO0	I	LR clock input. Input LR clock for SDO 0/1/2 data.	For SDO 0 data output	
6	ELRO1			For SDO 1 data output	
7	ELRO2			For SDO 2 data output	
8	EBCI0	I	Bit clock input. Input shift clock for SDI 0/1 data.	For SDI 0 data input	
9	EBCI1			For SDI 1 data input	
10	EBCO0	I	Bit clock input. Input shift clock for SDO 0/1/2 data.	For SDO 0 data output	
11	EBCO1			For SDO 1 data output	
12	EBCO2			For SDO 2 data output	
13	VSS	−	Ground terminal		
14	LR	O	LR clock output (1fs)		
15	WCK	O	Word clock output (2fs)		
16	BCK0	O	Bit clock output (32fs)		
17	BCK1	O	Bit clock output (64fs)		
18	SDI0	I	Serial data input. Input data length is able to select the 32 bit or 64 bit by the microcomputer control.		
19	SDI1				

No.	Name	I/O	Function	Remark
20 21	SDO0 SDO1	O	Serial data output. Output data length is able to select the 32 bit or 16 bit by the microcomputer control.	
22	SDO2	O	Serial data output. 16 bit data outputs.	
23	VDD	–	Power supply voltage	
24 | 31	A15 | A8	O	External RAM address output. Normally, use at quasi-static RAM mode. Fix to "L" at dynamic RAM mode. However, A8 is used to address output in the 1MDRAM (4 bit × 256k) mode.	
32	VSS	–	Ground terminal	
33 | 40	A7 | A0	O	External RAM address output. Output the load address/Column address in the dynamic RAM mode.	
41	VSS	–	Ground terminal	
42 | 49 52 | 59	IO0 | IO7 IO8 | IO15	I/O	External RAM data input/output Data length: 16 bit — I/O 0–I/O 7: Lower 8 bit (D7 – D0); I/O 8–I/O 15: Upper 8 bit (D15 – D8) Data length: 32 bit — I/O 0–I/O 7: Lower 16 bit (D23 – D16)/(D7 – D0); I/O 8–I/O 15: Upper 16 bit (D31 – D24)/(D15 – D8)	With pull – up resistor
50	VDD	–	Power supply voltage	
51	VSS	–	Ground terminal	
60	VSS	–	Ground terminal	
RC0 – RC3			(Quasi-static RAM mode) / (Dynamic RAM mode)	
61	RC0	O	$\overline{CE}$: Chip enable signal output / $\overline{RAS}$: Load address strobe output	
62	RC1		Not used / $\overline{CAS}$: Column address strobe output	
63	RC2		$\overline{OE}$ / $\overline{RFSH}$: Output enable / Refresh signal output / $\overline{OE}$: Output enable signal output	
64	RC3		R / $\overline{W}$: Read / write signal output / $\overline{WTITE}$: Read / write signal output	
65	$\overline{RST}$	I	Reset signal input	With pull – up resistor
66	$\overline{HALT}$	I	Halt signal input. In L active status, the program counter is stopped and the instruction is set to NOP. Normally used in emulator mode.	Schmitt input With pull – up resistor
67	$\overline{OVF}$	O	Overflow output. Set to L active when overflow ocurs in an operation.	Open – drain output
68	$\overline{CS}$	I	Chip select signal input. Data can be sent from CPU when $\overline{CS}$ is set to L active.	Schmitt input
69	IFCD	I	Command or data input selection from the microcomputer. "H" : command, "L" : data	Schmitt input
70	IFCK	I	Shift clock input for microcomputer data.	Schmitt input
71	IFDT	I	Microcomputer data input. Data which are obtained by adding a parity bit to commands or data are accepted in LSB first mode.	Schmitt input
72	$\overline{ACK}$	O	Acknowledge output for microcomputer. The acknowledge signal is output when the parity of a command datum is OK.	Open – drain output with pull – up resistor
73	DCHK	O	Microcomputer data return output. Data which are read in synchronization with the rising IFCK are output. In emulator mode, the break acknowledge signal "L" is output.	Open – drain output with pull – up resistor
74 | 76	TES0 | TES2	I	Test terminal. Normally, "H" or open for use.	with pull – up resistor
77	VDD	–	Power supply voltage.	
78 79	XI XO	I O	Crystal resonator connect pins.	
80	VSS	–	Ground terminal	

7. BLOCK DIAGRAM



8. FOR PD- DM902/KC, PD- DM802/KC, SD, HEM AND HPW

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

8.1 PD- DM902/KC TYPE

CONTRAST OF MISCELLANEOUS PARTS

PD- DM902/KC and PD- DM902/KU have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		PD- DM902/KU	PD- DM902/KC	
NSP	CD Packing case	PHG1929	PHG1952	
	Rear base	PNA1984	PNA2005	
	Operating instructions (English)	PRB1189	• • • • •	
	Operating instructions (English / French)	• • • • •	PRE1180	

8.2 PD- DM802/KC, SD, HEM AND HPW TYPES

CONTRAST OF MISCELLANEOUS PARTS

PD- DM802/KC, SD, HEM, HPW and PD- DM802/KU have the same construction except for the following :

Mark	Symbol & Description	Part No.					Remarks
		PD- DM802 /KU	PD- DM802 /KC	PD- DM802 /SD	PD- DM802 /HEM	PD- DM802 /HPW	
NSP	MOTHER board assembly	PWM1792	PWM1792	PWM1794	PWM1793	PWM1792	
	MAIN board assembly	PWZ2596	PWZ2596	PWZ2598	PWZ2597	PWZ2596	
⚠	AC power cord	PDG1015	PDG1015	PDG1013	PDG1003	RDG1022	
⚠	Power transformer (AC120V)	PTT1282	PTT1282	• • • • •	• • • • •	• • • • •	
⚠	Power transformer (AC220- 230V/230- 240V)	• • • • •	• • • • •	• • • • •	PTT1283	PTT1283	
⚠	Power transformer (AC110V/120- 127V/220V/240V)	• • • • •	• • • • •	PTT1284	• • • • •	• • • • •	
⚠	Line voltage selector (AC110V/120- 127V/220V/240V)	• • • • •	• • • • •	PSB1002	• • • • •	• • • • •	(Rear base)
⚠	Strain relief	CM- 22C	CM- 22C	CM- 22B	CM- 22B	CM- 22B	
	Display window	PAM1613	PAM1613	PAM1613	PAM1619	PAM1613	
NSP	Rear base	PNA1983	PNA2000	PNA2004	PNA2001	PNA2003	
	Cord with mini plug	PDE- 319	PDE- 319	PDE- 319	• • • • •	PDE- 319	
	CD packing case	PHG1928	PHG1950	PHG1951	PHG1950	PHG1950	
	Single magazine assembly	• • • • •	• • • • •	PXA1386	• • • • •	PXA1386	] Accessories
	PP case	• • • • •	• • • • •	PYY1159	• • • • •	PYY1159	
	Operating instructions (English)	PRB1189	• • • • •	PRB1189	• • • • •	PRB1189	
	Operating instructions (English/French)	• • • • •	PRE1180	• • • • •	PRE1180	• • • • •	
	Operating instructions (German, Italian, Dutch, Swedish, Spanish, Portuguese)	• • • • •	• • • • •	• • • • •	PRF1064	• • • • •	

MAIN BOARD ASSEMBLY

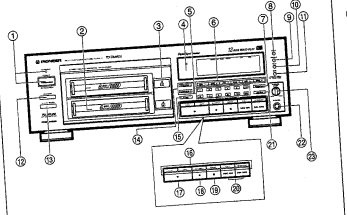
PWZ2598, PWZ2597 and PWZ2596 have the same construction except for the following :

Mark	Symbol & Description	Part No.			Remarks
		PWZ2596	PWZ2598	PWZ2597	
⚠	IC31	• • • • •	ICP- N10	ICP- N10	
	D391- D394	1SS254	1SS254	• • • • •	
	L391,L392	LAUR47K	LAUR47K	• • • • •	
	C393	CCCSL101J50	CCCSL101J50	• • • • •	
	R391	RD1/6PM244J	RD1/6PM244J	• • • • •	
	R392	RD1/6PM102J	RD1/6PM102J	• • • • •	
	JA391,JA392 (Jack : CONTROL IN/OUT)	PKN1004	PKN1004	• • • • •	

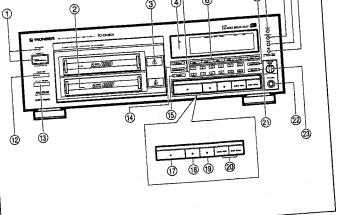
9. PANEL FACILITIES

FRONT PANEL

PD-DM902



PD-DM802



① **POWER STANDBY/ON switch and STANDBY indicator**
② **Magazine insertion slots**
③ **Eject buttons (⏏) (Magazine 1 , Magazine 2)**
④ **Remote sensor**
Receives the signal from the remote control unit.
⑤ **Track Number/Digit buttons (1–10, +10, ≧20)**
⑥ **Disc Number buttons (DISC 1 – DISC 6)**
⑦ **PROGRAM button**
⑧ **ADLC button**
⑨ **REPEAT button**
⑩ **TIME button**
⑪ **EDIT button**
⑫ **RANDOM button**
⑬ **HI-LITE SCAN button**
⑭ **MAGAZINE buttons (MAGAZINE1, MAGAZINE2)**
⑮ **FADER button**
⑯ **DIGITAL SIGNAL PROCESSOR buttons (FLAT, JAZZ, CHURCH, DANCE, HALL, STADIUM) (PD-DM902 only)**
⑰ **Play button (►)**
⑱ **Pause button (❚❚)**
⑲ **Stop button (■)**
⑳ **Manual/Track search buttons (⏮ ◄◄, ►► ⏭)**
㉑ **DELETE button**
㉒ **Headphones jack (PHONES)**
㉓ **Headphones volume (PHONES LEVEL)**

10. SPECIFICATIONS

1. General

Type ..... Compact disc digital audio system
Power requirements
U.S. model ..... AC 120 V, 60 Hz
Australian model ..... AC 230 - 240V, 50/60 Hz
Multi-voltage model ..... AC 110/120 - 127/220/240V (switchable) 50/60 Hz
Power consumption
PD-DM902 ..... 13 W
PD-DM802 ..... 12 W
Operating temperature ..... +5°C - +35°C (+41°F - +95°F)
Weight ..... 5.5 kg (12 lb 2 oz)
External dimensions ..... 420(W) X 305(D) X 140(H) mm 16-9/16(W) X12-1/16(D) X 5-9/16(H) in

2. Audio section

Frequency response ..... 2 Hz - 20 kHz
S/N ratio ..... 102 dB or more (EIAJ)
Dynamic range ..... 96 dB or more (EIAJ)
Channel separation ..... 96 dB or more (EIAJ)
Harmonic distortion ..... 0.003 % or less (EIAJ)
Output voltage ..... 2.0 V
Wow and flutter ..... less than ±0.001% (W.PEAK) (below measurable level) (EIAJ)
Channels ..... 2-channel (stereo)

3. Output terminal

Audio line output
Headphone jack with volume control
Control input/output jacks
CD-DECK SYNCHRO jack

4. Functions

Number of discs to be stored - maximum 12.

Basic Operation Buttons
- Play, Pause, Stop

Search Function
- Magazine Search
- Disc Search
- Track Search/Manual Search

Programming
- Maximum 40 steps
- Pause
- Program Check/Correction (remote control unit)
- Program Clear (single track or all tracks)
- Delete Play

Repeat Functions
- 1 Track Repeat
- All Discs Repeat
- Program Repeat
- Random Play Repeat
- Delete Play Repeat
- Delete Random Play Repeat
- Magazine Hi-Lite Scan Repeat

Random Play
- Random Play (repeat also available)
- Delete Random Play (repeat also available)

Switching Display
Time consumed, remaining time (track/disc), and total time

Timer Start

ADLC
Automatic Digital Level Controller

DSP (PD-DM902 only)

Digital Level Controller
Volume control possible.

One-touch Fade
Fade-in and fade-out possible.

Compu Program Editing
Selects the tracks for both sides of the tape within the specified time.

Time Fade Editing
Selects the tracks within the specified time. Playback stops with a fade-out.

Magazine Hi-Lite Scan (repeat also available)
- DISC SCAN
- TRACK SCAN

Power On/Off (remote control unit)

Automatic Power On Function

Power Down Eject Function

5. Display

FL Tube Display
- PLAY Indicator
- PAUSE Indicator
- SCAN indicator
- Elapsed Time Display (min, sec)
- Remaining Time (track/disc) Display
- Total Time Display
- Magazine Number, Disc Number, Track Number
- Program Step Number
- Program Indicator
- Repeat Indicator
- Random Play Indicator
- ATT Level Display
- Time Fade Editing Indicator
- Compu Program Editing Indicator
- Delete Indicator
- Disc Symbol Indicators
- ADLC Indicator
- DSP Indicator (PD-DM902 only)

6. Accessories

- Remote control unit 1
- AAA/R03 dry cell batteries 2
- 6-compact-disc magazine 2
- Single-compact-disc magazine (except for U.S. model) 1
- Output cord 1
- Control cord 1
- Operating instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

The Magazine Type Multi-Play CD Players with mark and the Magazines with the same mark are compatible for 5-inch (12cm) discs.